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AERIAL RAILROAD BRIDGE FOR NAVIGABLE RIVERS.

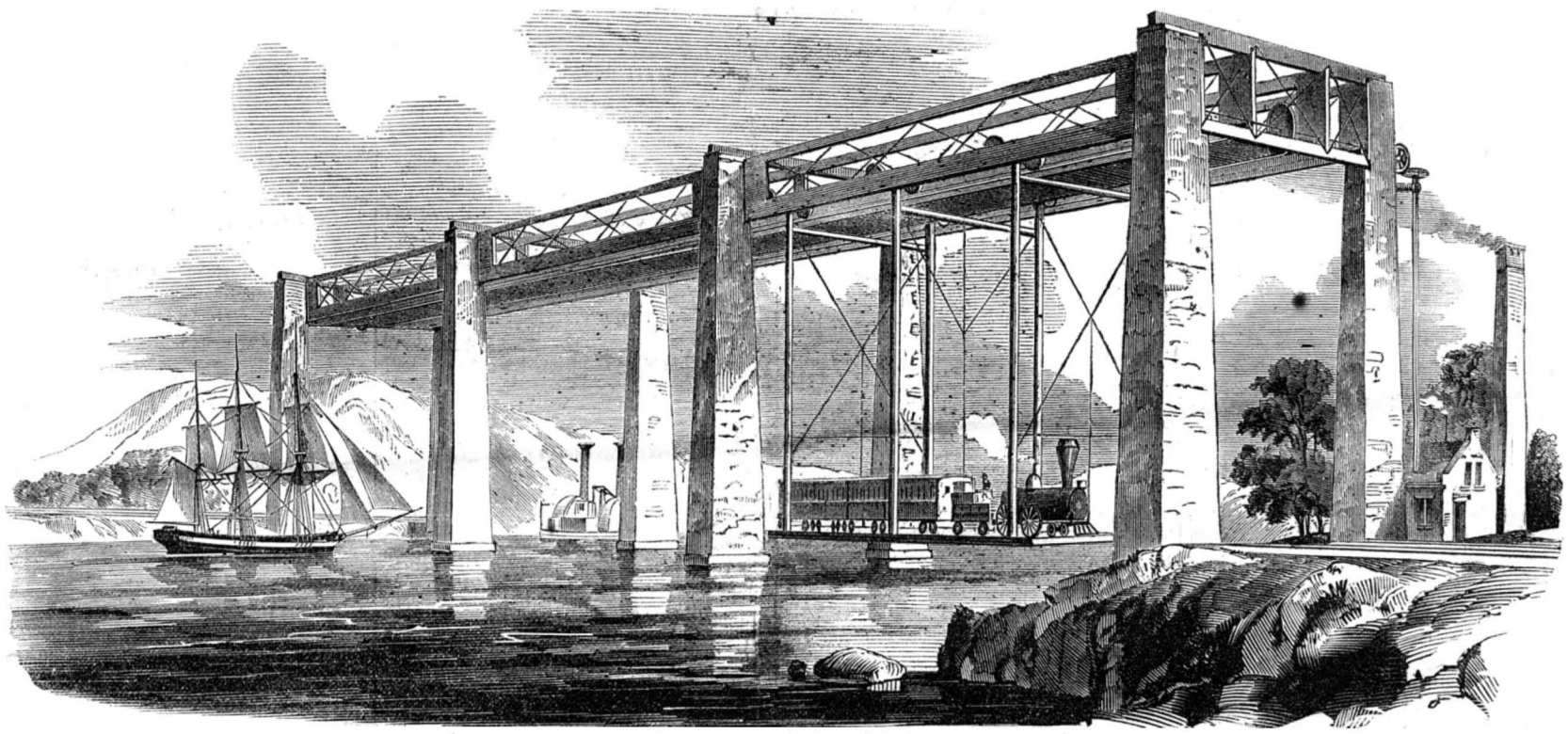
Mr. H. N. Houghton, of Bergen, New Jersey, has taken measures to secure a patent for a bridge to extend over navigable rivers, and to avoid all the objections heretofore brought against such structures.

Fig. 1 is a perspective view, and fig. 2 is a plan view.

The nature of the invention consists in erecting piers of a great height and placing a double track railroad on the same, sufficiently high to allow the masts of ships to pass freely underneath during the highest freshets or tides. A suspension carriage (or carriages) is employed; it is hung to run on the track above, and the platform of it is hung so far below the track on the piers, as to allow persons and carriages to pass on the suspension carriage or platform, and to be propelled to the other side.

A A represent the piers; sleepers, *a*, of great strength are laid from pier to pier. The sleepers are supported by stays and braces, B B, extending across, the strong ones resting on the centre of the piers, and binding the side sleepers, *a*. The rails are laid on the inside sleepers, F F. A truck or carriage platform is suspended from the track above. Its side suspension frames are hung on railroad car wheels, D D. It is like a railroad car with wheels inverted. It may be termed a railroad truck to which a carriage is attached by a suspension frame, the truck running above instead of below the common carriage. The truck may be formed in any manner found the most suitable, either like the one, C, D, E, or some other modification of it. A pulley, J, is represented in fig. 2 on a cross shaft, and a strong rope passes over it, and along the whole length of the bridge. This is operated by a stationary steam engine at one end of the

Figure 1.



bridge, in the same way that trains of cars are moved on some steep inclines. The number of piers will be in proportion to the width of the river the bridge is designed to cross. The sleepers, with their rails, are firmly supported on truss frames springing from the piers, so as to leave free space between the piers for the passage of the carriage, and they can be made stronger than common long suspension bridges.

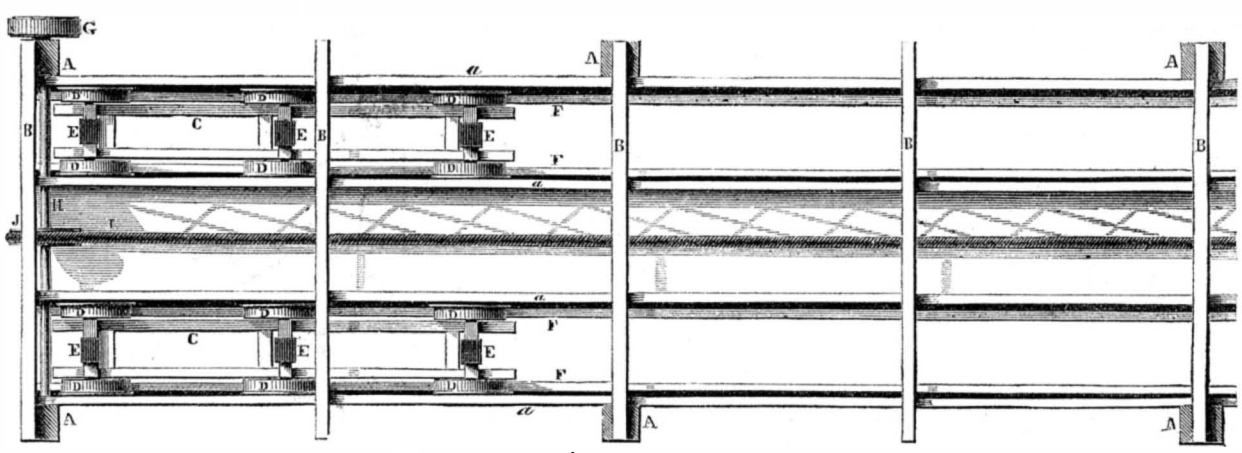
As will be observed, in fig. 1, the cars can run from the level of the track to the suspension carriage, and pass right on to the track on the other side. The Supreme Court of the United States has just decided that the Wheeling Suspension Bridge is an obstruction to the navigation of the Ohio river, and that it must come down or be elevated to one hundred and eleven feet, or nineteen feet higher than it is at present. There is a certain height—according to the altitude of the river banks—beyond which it is impossible to erect a bridge that will be useful. To erect a bridge over the East River, at New York, it would require to be 200 feet above the level of the river. It would be like climbing up the gable of a house for horses to get up to the roadway. This suspension carriage bridge removes this difficulty; the bridge may be 200 feet high, and the transporting carriage may be on a level with the roadway of a street. At the same time inclines or stairs may be made to the top of this bridge for foot passengers, while below it is adapted to carriages, leaving a free passage at all times for the tall ship or majestic steamboat. It thus can answer a three-fold purpose, viz., a bridge to transport carriages on a level with the roadway at each side; a bridge without a draw to let the largest vessels pass freely under it at all times; and a bridge for foot passengers like any other bridge.

The question of erecting a bridge over the East River at New York has been often discussed, but no bridge could be erected over it that would now pay expenses and compete with steam ferry-boats. That a bridge could be erected, there can be no doubt at all, and the one here presented would be by far the best in every sense of the word.

To erect a draw-bridge over the Hudson from New York to Jersey City, the interests of the public would probably suffer, that is the damage to navigation would be greater than the benefits conferred, because the shipping that passes this point is immense, and the other business is comparatively small. But at Piermont the shipping is much less, while the Erie Railroad brings to that point a world of freight and passengers from the great West.

By building a bridge like the one here represented, navigation there would not be impeded, we believe, at all, while the benefits to the railroad would be incalculable, as they could load and unload their cars in New York, take up and set down their passengers there, and not be delayed by ice in the winter, and by the unloading, storing, carting, and shipping of freight. At Albany there is still less shipping, and the five railroads already centering there make an immense amount of freight to cross the Hudson at this point, and it is understood that three more large roads, leading northeast to Vermont, northwest to Sackett's Harbor, and southwest to the Erie Road, some of which are already commenced, and all may be considered as fixed facts. All these roads, it is safe to say, will bring to Albany daily 3,000 passengers, and 3,000 tons of freight. A large proportion of this freight, and probably three-fourths of the passengers, (taking the whole year) cross

Figure 2.



the river, while probably not more than one-fourth this number of passengers and one-half the amount of freight passes by Albany on the river. The question then arises, why should these two thousand railroad passengers be subjected to the delay, inconvenience, uncertainty, and expense of crossing with their baggage upon a ferry-boat? What injustice would there be in subjecting the 500 river passengers to some little delay to save the 2,000 railroad passengers a much greater delay. But an elevated bridge and railway would not obstruct navigation at all. The policy of erecting such a bridge as this at such a place as Albany surely requires no second consideration. More information may be obtained by letter addressed to Mr. Houghton. We may make a few more remarks on this subject next week.

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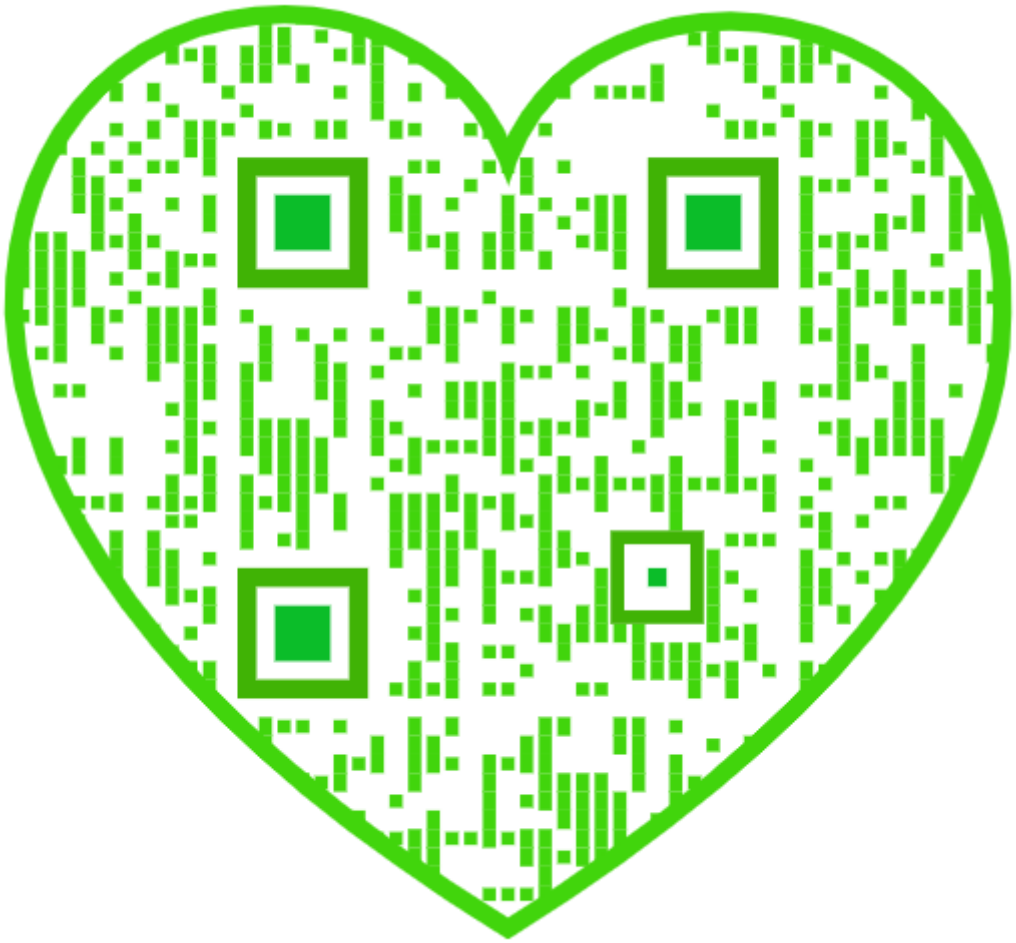

MISCELLANEOUS.

The Woodworth Patent Extension.

Previous to the reign of James the VIth, the most enormous evils were perpetrated in England, by the granting of patents by kings to courtly favorites, and to those who paid well, by bribes, for the special despotic grants. There is a vast difference between a monopoly grant, and a grant to encourage improvements. Monopolies are tyrannic, always have been, and ever will be: they check improvements, they tend to repress inventions. At one time monarchs invested court profligates with monopolies of various classes, and these men prevented honest mechanics from following their legal occupations, unless they paid licenses for the same. Perpigna, a French writer on the law of patents, makes the statement, that, under these monopolies of the despotic kings of France, "the spirit of invention and enterprise could never rise to high conceptions." It was the same in England; the spirit of invention was pressed down by the iron heel of monopoly, and the spirit of hope and improvement in the arts and sciences, "for a season bade the world farewell." It is one of the most glorious triumphs of the pedantic James VIth's reign, that he abolished the old system of monopolies and laid the foundation of our modern patent laws. From that moment improvement began to dawn upon the arts—it was the advent of the arts from the trammels of the dark ages. All the dark lines, however, were not blotted out, some of them still blacken the legal records of England; and, alas! we must say it, our own country too. The history of Connecticut, and also of some of the other States, even after the Revolution, is dark with the grants of manufacturing monopolies "for making snuff, cloth, dyeing," &c. These monopolies, instead of encouraging manufactures, in every case repressed improvements. This was the case with the patent monopoly granted by the New York Legislature to Fulton and his associates; for, although Fulton was the first who made the steamboat successful, if his patent had not been broken, we would now, as a nation, be behind all the nations in Europe in steamboats, instead of being in advance of them. As soon as that unjust monopoly was broken, a steamboat was built by Mr. Stevens, which moved twice as fast as Fulton's boat. The reason why we oppose the extension of the Woodworth Patent, is, because we honestly believe it is an unjust monopoly. We advocate the protection, by patent, to every man of his own specific invention, but the great evil of all monopolies is the crushing tyranny they exercise towards honest inventors who are so unfortunate as not to possess wealth. If an inventor designs some improvement in the same line as that of the monopoly, although a perfectly distinct invention, he at once receives a notice from the lords of the monopoly to proceed and use his own invention at his peril. If he is poor, he is at once frightened into compliance; if he has a little money, and dares them to do their worst, he is approached by other means, and in a short time he is found to drop his own invention and become a satelite of the monopoly lords. Money can do anything with some men, and the Woodworth patent power has a most potent influence. How is it that we see those men who once opposed this patent, only by standing like men on their own rights as distinct patentees, now using their influence to promote the extension of this patent? How is it that as soon as a determined inventor and improver in planing machines, resists the claims of this monopoly, the call from the Triumvirate goes forth, "bind him, lictors," and a host of old patentees, who once solemnly kissed the Holy Evangelists, and swore that their own inventions were different from Woodworth's, come forth and give so decided an influence to maintain the monopoly, and thereby crush the honest patentee who, Milo-like, dares the power of the Clodian tribe. These things are humiliating to every independent-minded American.

The petition to extend the Woodworth patent is now before Congress; the present grant does not run out until 1856. This should excite suspicion at once, and the Patent Committees and every Member of Congress should give this question a candid and important examination. They should endeavor to ascertain how many of the monopoly machines are running in the United States, and the annual amount of lumber dressed by them. Citizens in every part of the country should write to their Representatives, giving them all the information they can on the subject, and they should send petitions to Congress, as soon as possible, on the subject. All persons who have been litigated against should set forth their grievances to the Senators and Members of Congress with whom they are acquainted. The persons comprising the Lords of the Monopoly, who pray for the extension of this patent, say they have been rendered poor by suits at law,—but they have always been the cause of these suits themselves, and their conduct is like that of the British Government which, itself being the cause of the war of 1812, yet wanted us to pay the expenses of it—the name for this principle of action is "modest assurance." The present patent now owned by the monopoly, and which is used by them in courts of law, is a re-issued patent by the Patent Office; which re-issue was obtained after Congress extended the original patent; and obtained, as Mr. Burke, the then Commissioner says, in a clandestine manner whilst he was absent from the Patent Office. It claims more than ever was claimed by William Woodworth, the inventor, and was obtained six years after he was in his grave, and seventeen years after his patent was first issued. This dark transaction has something fearful about it, for William Woodworth, whilst alive, was too honest and earnest a man to claim that which he never invented. The re-issue was obtained on *ex parte* evidence, for there is an oath of William Woodworth in the Chancery Records of New York, which is complete proof that he did not claim those principles embraced in the re-issued patent, which has been obtained since he was dead, and since Congress extended the original patent. This very fact is enough to make every honest Member of Congress stand back for a while, and look intently upon the attempt now being made, five years before the present grant expires, to get the monopoly extended. Every Member of Congress who loves justice, who spurns with loathing the assertion that "every man has his price," will surely give this subject a calm survey, and after having done so, we venture to say that his patriotism will find utterance in burning words to frown down a monopoly that now treads upon the necks of many honest inventors, who cannot use their own machines (which are entirely distinct from the Woodworth machine), because the Monopoly waves over them the terrors of expensive law suits.

For the Scientific American.

Clock Telegraph.

On looking over No. 20 of the present volume of the Scientific American, I find an artical headed "New Clock Telegraph;" this invention, according to the statement in your journal, is of English origin. Permit me to inform you that I claim priority of said invention, from the fact that I made my first attempts, in the early part of 1845, to transmit two or more messages over one and the same wire at the same time, since which time I have brought my machines through various forms and improvements, until I am now able to present the public with an instrument but little more complicated than the Morse machine, and which is capable of transmitting from 500 to 1000 letters per minute. I therefore send this communication, wishing thereby to establish my rights as the inventor of said principle. My machines, according to the description of the English invention, as given in your journal, differ in their modelling, mine having no pendulum, nor anything relating to one, but works with a straightforward rotating motion, and possesses one decided advantage over every other Telegraph yet invented, it consists of an apparatus attached to the one machine whereby the other is corrected, without the hand of the attendant. The number of corrections in a minute, in case of bad and stormy weather, can be varied from 20 to 500 times, thereby obviating the necessity of repetition, as commonly practiced upon the present established telegraph lines.

I have withheld my invention from the public for the sole object of allowing myself time to improve it, and also to overcome the use of the electro-magnet; in this latter I have been partially successful, but not to my entire satisfaction, on account of its being expensive. I was in hopes that the combination I presented with my gas lighter, for your inspection, would have had the desired effect, but your opinion was that a patent could not be granted for it, when employed as a prime mover for telegraph purposes; I consequently abandoned the idea for the time. It was my intention to have exhibited my machines at the great Annual Fair, last Fall, for the purpose of establishing my rights, without prejudice to the above invention, but owing to some improvements added to them, I was unable to get them finished in season. The time is not far distant when I shall place my improvements on exhibition, when the scientific public of this country will be better able to judge of their merits. DAVID BALDWIN.

Paterson, N. J., Feb. 2, 1852.

The First American Cloth.

Rev. Mr. Littlejohn, of New Haven, in his lecture before the Arts' Union, in this city, on Monday night, remarked that the first piece of cloth ever made in the United States, was manufactured in Hartford, Conn., by Jeremiah Wadsworth, in 1790, and that Gen. Washington was dressed in a suit of clothes made from this cloth.—[Hartford Courant.

[There must be some mistake about the above, for cloth was made in the colonies at a period nearly coeval with their settlement. In 1786, four years before the above period, patents had been granted for improvements in spinning and carding machines, to Robert Lemmon, of Baltimore, Md. In 1782, Elijah Lothrop, and Timothy Donevan, of Norwich, Conn., petitioned the Legislature of Connecticut, to allow them to carry on the business of clothing and blue dyeing. This the Hartford Courant should be acquainted with.

Garden Walks.

In England it is a matter of great importance to prevent weeds or grass growing on gravel walks, for such is the dampness of the climate, that mosses and weeds of several sorts fasten upon and completely overrun them. The keeping of such walks clear is measurably important also in this country. It has been found there, according to the Gardener's Chronicle, that gas tar is absolutely fatal to vegetable growth, and a coating of it spread over a walk keeps it clear as long as the tar remains. To apply it in the best manner have the walk made and rolled hard, then put on the tar with a brush, and as it is offensive to the eye and olfactories, cover it with a thin coat of gravel which becomes incorporated with it and forms a hard, dry, unincumbered walk.—[Prairie Farmer.

Old Picture of Genesee Falls.

The Rochester (N. Y.) Democrat states that Thurlow Weed, senior editor of the Albany Evening Journal, now in Paris, has discovered a painting of the Genesee Falls, executed in 1795, by the brother of Louis Philippe, while they were passing through the country to the Niagara Falls. The owner has consented, at the solicitation of Mr. Weed, that this painting, the first ever made of the Falls, shall be presented to the city of Rochester. The view was taken from the east side of the river, opposite the old site of Adcott's cotton factory. The artist made the sketch while his brother, the late king of France, and two others, were preparing their humble exile collation, spread upon a blanket under a tree. What changes have taken place in the world since then.

Extension of a Patent by Congress.

The bill to extend, for fourteen years, to Moore and Hascall, their patent for a grain cutting and gathering machine, has passed the House of Representatives in Washington.

A Sheffield (Eng.) paper says that the venerable poet Montgomery has read the notices of his death, in the American papers, with their accompanying eulogies, with much satisfaction, and, what is more, read them without the aid of glasses.

It is not generally known that Montgomery is a native of the land of Burns, the country of the Montgomeries.

Direct Railroad between Rochester and Syracuse.

The Wayne Sentinel says, that the grading of this road for the first track is nearly completed, and it will be ready for the superstructure early the coming season. The iron rails and the cedar ties are mostly delivered or ready for delivery at convenient points along the line of the road. This work, when done, is designed to be, in its construction and advantages of line and grade, and also in its equipage and management, not inferior to any railroad in the United States. It is very direct, nearly straight through most of the route—will be only eighty miles long, shortening the distance between the two cities, compared with the road now in use, nearly twenty-five miles—and having a grade at no point exceeding fifteen feet to the mile from a perfect level. The first track, it is expected, will be ready for the cars early next summer; and the construction of the second track is to be commenced immediately thereafter and hastened to completion.

Fire Annihilator Experiment.

Another trial of the Fire Annihilator took place last Monday, at 1 P. M., at Melrose, a small village about ten miles from New York. The house was a plain boarded edifice—floored and close all round. Three experiments were made, and were very successful, but the conditions, for a comparative result, were not the same as if the Annihilator were tried on a house on fire in our city. When the fire broke out on the outside, men with wet swabs put it out. The experiments, however, were fair, although the party invited to witness it was quite a select one.

Egyptian Railway.

The Egyptian Railway works are now in active operation, and 10,000 men will soon be employed on the north end of the line. Mr. Stephens intends that, in order to do away as speedily as possible with the inconvenience of the Mahmoudie Canal navigation, the line from Alexandria to the Nile, near Nigeelah, shall be completed at once, and he expects passengers and merchandise will be thus far conveyed within twelve months. It is finally decided that the railway is to pass through the populous and well cultivated delta, crossing the Nile by a floating bridge at Kafr Zayat, a route that will be much more advantageous to the country than that first thought of, through the desert on the western side of that river.

A Strange Case.

Three years ago, a young man named Greensmith, residing in Halifax, (Eng.,) swallowed a full sized needle. Attempts were made at the time, by a medical gentleman, but without success, to force it in a downward direction. The young man experienced a painful sensation in the throat for a few days after, but as time wore on, it gradually disappeared, and he recovered and enjoyed his usual health. At an early hour one morning he suffered a painful head-ache, attended with a peculiar sensation on the top of the head. On putting his hand to the part affected he felt the needle protruding, and gradually drew it out.

Gas for Brazil.

A company in Glasgow, Scotland, has made a contract with the government of Brazil, for lighting the city of Rio de Janeiro for twenty-five years. The gas mains are to extend over 30 miles. The company are to pass 140,000 cubic feet of gas per hour and to light 1,800 lamps. This will be the first gas works erected in South America. The material of which the gas is to be made is Scotch cannel coal.

Another Reaping Machine.

The Illinois papers say that Mr. Charles Denton, of Peoria, has invented a reaping machine which surpasses McCormick's, cutting the grain, whether standing or lodged, green or dry, upon rough or uneven surface, laying it in bundles, and doing it well.

Jenny Lind is married to Otto Goldschmidt, the famous pianist. She is 31 years of age, he 24. They were married in Boston, according to the form of the Episcopal Church.

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Judge Kane's Decision on Telegraphs.

MESSRS. EDITORS—I noticed your comments in your paper of the 15th ult., respecting the Telegraph Case; and being of the opinion that you desire to give correct views in regard to rights and titles of inventors, I beg leave to offer a few remarks. You say, "the invention of Mr. Morse consists in this, that he transmits messages to a distance, using the mechanical action of an electro magnet to do so by making marks." "The Chemical Telegraph consists in transmitting messages to a distance, not using mechanical action, but chemical, to do so, by making marks."

The application of electricity to a wire, or to rods of metal, and the discovery that it will travel from one end to the other, is of ancient date; Morse makes use of this ancient discovery for the purpose of making marks at a distance, to denote the letter of the alphabet, thereby conveying ideas or language through miles of space. The apparatus consists of three principal parts, namely, the two machines and the wire which extends from one machine to the other.

We hear of signals being given at a distance by electricity, previous to the invention of Morse, but we never hear of an answer being returned by the same apparatus. Neither do we hear of the alphabet being transmitted to a great distance and recorded in suitable intelligible characters, by the employment of electricity, until Morse made the invention and produced the result. Morse made the telegraph double-acting, that is, to transmit messages both ways. You are in error in saying that "Morse uses the magnet in transmitting messages." The magnet has nothing to do with transmitting messages, it merely acts to record messages transmitted by electricity; and Bain demonstrated that the magnet is not even necessary for that purpose, but that fact does not give Bain a title to use other parts of Morse's invention. The object designed and result produced, by both Telegraphs, are the same (that is, to transmit messages), and the working instruments, in both cases, are precisely the same; that is, the marks are made by the point of a metallic instrument in both cases. The distinctive features of the respective inventions of Morse and Bain are the following: Morse marks the paper by an indentation; Bain marks the paper by coloring it without an indentation; Morse's marking instrument acts by moving; Bain's marking instrument acts without moving; Morse uses two conducting wires,—Bain uses one conducting wire. In both cases the paper, prepared to receive the impression, is moved under the marking instrument by machinery, prepared for the purpose, with equal regularity in each machine.

Morse's invention is valuable, and his title is good, if his claims are rightly made; Bain's invention is valuable and his title also good, if his claims are rightly made; but Bain cannot lawfully use any part of Morse's invention without his consent.

If I understand Judge Kane's decision rightly, he has not "taken Bain's invention from him and given it to Morse," as you assert, he has decided correctly that the use of the Telegraph, called Bain's Telegraph, has infringed Morse's patent. Notwithstanding this decision, Bain's invention is undoubtedly an improvement on Morse's invention, and as such he is justly entitled to a patent, and if the two inventors cannot agree to use their respective inventions in connection, Bain cannot lawfully use his invention without first obtaining a right to use Morse's invention.

When Bain applied for a patent, it was the duty of the Commissioner to grant it, or refer him to something in the Office that would render his title to a patent invalid, if granted. The Commissioner referred him to the invention of Morse, stating that it was an improvement on it, and, as such, he was entitled to a patent, but decided that his claims interfered with the invention and claims of Morse. Bain insisted on his claim to a patent for a distinct invention; this claim was justly refused by the Commissioner, consequently Bain appealed from the decision of the Office to the Chief Justice of the District of Columbia (the Judge decides cases by the evidence before the Court). In this case the Judge decided that "a patent cannot be granted for a principle nor for the application of a principle, nor for a result," and as the two machines were differently constructed, the Judge reversed the decision of the Patent Office, and ordered the patent to be granted. This decision of the Hon. Judge was probably correct, according to the evidence before him. This decision was undoubtedly rendered in consequence of the defect of Morse's claim; if he had simply claimed the employment of electricity on transmitting wires, in combination with a recording instrument, for the purpose of making marks at a distance, on paper or any other substance, to designate the letters of the alphabet, without resting his claim on any particular construction of machinery for that purpose, the Court would have understood his invention and claim, and would not have granted Bain a patent for a machine to produce the same result, by the same means employed. The transmitting and recording being the subject matter of novelty in Morse's invention, he was not, therefore, necessarily confined to any particular or definite construction of machinery for that purpose. It is very injudicious to make use of the words "art, process, product, or principle," in any claim to an invention, as those words have a very indefinite meaning, when applied to any combination of machinery to produce any result whatever.

Your remarks respecting the art of printing as a similar case to the telegraph, are not arguments. The art of printing (as a mechanical art) consists in multiplying copies by using one or more instruments, to give and repeat the same impression on any suitable substance. If this invention could have been patented at the time it was invented, under laws like our own, it would have included the representation of anything and everything that could be represented by printing; that is, the simple combination of the coloring material with the substance colored, by the employment of instruments prepared for the purpose of multiplying copies of the same thing, whether the thing be the letters of the alphabet or the representation of men, animals, landscapes, or anything else, and all the improvements that have been made in the art, since the original invention, consists in improving and perfecting the type-plates, &c., the ink or coloring material, the substance on which the impression is to be made, and the instruments and machines to give the impression.

The various processes you spoke of as different arts or inventions, are merely branches of the original invention.

The person who first spun a thread made an original invention, even if his spindle was a rough stick placed and turned in the branches of a tree; and the man who first invented weaving probably tied his threads to the branch of a tree, and put in the filling by hand. All the machines which have since been made for the same objects, are for improvements on the original inventions; and the man who first grasped electricity, and sent it across the country with an intelligible message to a friend, by the use of machinery, produced a new and original invention, and all inventions made afterwards for the same object, employing the same messenger, must be for variations of the original machinery to produce the same result, whether they are actual improvements on the original invention or immaterial variations or alterations.

If the invention of Morse had been of ancient date, and had become public property, then the invention of Bain would have been patentable as a distinct invention, without any reference being given respecting the original inventor; his claims would be good by simply claiming his invention to be an improvement on the Electric Telegraph (specifying the particulars, &c.)

The Telegraph patented by House records messages by making marks to represent the precise form of the letters of the alphabet; it is also an improvement on the original invention, and as such is justly entitled to a patent. The principal subject matter of novelty, in this invention, consists in making the points of the recording instruments to represent the actual letters of the alphabet, instead of representing them by marks, but he uses the same combination of the transmitting wire with the recording instrument, which is the subject matter of novelty in the invention of Morse.

By the provision of the Patent Law, as it now stands, both Bain and House can surrender their patents and demand a re-issue with an amended claim, embracing only what they invented, and they will find protection in all cases where their inventions are used by those who hold a right to use Morse's invention. This provision for the amendment of claims is a saving clause in the Patent Law, and constitutes one of its best features. All patents of the most important inventions, which have been patented, would have been rendered invalid, and would have ruined the inventors by costs of law suits, in trying to support their rights, had it not been for this saving clause. This fact must have been well known to Commissioner Ewbank when he recommended Congress to pass an act to take all inventions from inventors "after two years," if their claims should prove defective by "inadvertence and mistake;" he undoubtedly had some particular case or cases in view at the time he made this recommendation, in his Report to Congress—perhaps this very case of Bain was one of the number; he goes still further, and explains his object—that is, to destroy the title of the original inventor, and give his invention to the pirater of patent rights, for whom he expresses great sympathy, designating him as the second inventor; here are his own words, which may be found in his Report to Congress for the year 1849 (Doc. No. 20, page 8 and 9), "the law now permits what is termed a re-issue, embodying matter not claimed in the original patent, if shown by the model and drawings. The device having been a part of the first construction of the machine, is now claimed; and, having been new at the date of the original application, a right to its exclusive use is demanded;" he further says, "a system of tribute is in this way levied, originating with the indefatigable explorer of old and useless patents, whose object is to discover something which they may now claim under the law, and which can be used to legal advantage, in defiance of equitable right, thus operating against a beneficial invention, containing the same features subsequently patented." The honorable gentleman does not tell Congress how such "subsequent patents," for the same thing, are obtained. He certainly ought to have credit for his peculiar penetrating sagacity, in discovering that the original inventor does not know the merits of his own invention until "the indefatigable explorer of old and useless patents" brought the thing to light. Here is certainly an original idea, and the Hon. Commissioner ought to have credit for it. He has introduced a new kind of business—a new occupation, "to explore old and useless patents." He has made another new discovery, which he has given to the world, free gratis, through his Report to Congress, that is, if the first and original inventor and patentee prosecutes the second inventor and patentee, he possesses "legal advantage, in defiance of equitable rights;" and in consequence of this wonderful discovery, he makes the following recommendation to Congress (see his Report, Ho. Doc. page 9), "it is therefore recommended that no re-issues, containing a claim broader than the original claim, be granted, unless application therefor be made within two years from the date of Letters Patent." If this recommendation should be adopted and become a law, all the patent pirater has to do is to wait two years, when he can infringe with impunity, as he well knows that the inventor would not discover the defect of his claim until he discovered it on a trial for infringement; and these two years are no longer time than is necessary for the pirater to prepare for the business, while the inventor is spending his time and money in his exertions to introduce his invention and make his merits known.

The former Commissioner acted justly and honorably, agreeably to the provisions of the law, by informing Mr. Bain that his claims interfered with the invention and claims of Mr. Morse. The late decision of Judge Kane confirms this decision of the Office.

The present Commissioner acts the reverse, by saying to inventors, "there is nothing new or patentable in your invention," without even stating that it would interfere with any other patented invention, if granted; such cases have been appealed, and his decision reversed.

HERRICK AIKEN.

Franklin, N. H.

[Without making too long an article of this, we could not answer some of the points in which we believe Mr. Aiken is in error,—but shall do so, briefly, next week.—ED.]

Resuscitation of Frozen Fish.

We have received a great many communications on this subject, all of them corroborating the statement, "frozen fish will come alive again when placed in a tub of water." Quarterman & Son, this city, informs us that the fish in the streams of Westchester Co., N. Y., are frequently caught, thrown out, left to freeze, and are resuscitated when thawed. Mr. Cumings Martin, of Taftsvslle, Vt., caught suckers out of White River, Vt., flung them on the ice, allowed them to be there for hours until they were apparently frozen through, and would rattle in the basket like pine knots. When thawed out in cold water, they would wriggle and move about as good as new. J. H. Bacon, of Westchester, Mass., says he has taken Tom Cod out of the river, allowed them to freeze, carried them to Boston and has seen them come alive when thawed. William Rummel, of Jersey City, N. J., caught a some perch in the Hackensack river, in 1836, which froze quickly, he carried them to market which was very dull, he then packed them in snow for three weeks, and after this, when applying pump water to them, every twenty-five in thirty swam about in the tub. He says if fish be frozen in moderate weather, and take a long time to do so, they will not return to life. Robert Pike, of Wakefield, N. H., says he has caught brook trout in January, which froze through in a few minutes, and which, after five hours, when he took them home and put them in a tub of cold water, swam around quite lively. Thomas Power, of Hudson, N. Y., says he has seen fish which were frozen as hard as rock come to life when thawed in cold water. The fish were yellow perch found in the Hudson river. D. H. Quail, of Philadelphia, noticing the statement of Prof. Lathrop, says he has caught fish in N. J. near Fortescue's Beach, in Delaware Bay, in winter, in the following manner, which is interesting; he says, "having procured a small boat, we dragged it into the ponds that were formed on the marsh by high tides, and which were frozen over nearly hard enough to bear the boat; then commenced the sport; one would stand in front to break the way, another push the boat along, the third with a small crab net would scoop up the fish which could be seen upon the bottom frozen as stiff as bones—they were all large perch. I caught half a bushel, which, when taken home and put into a tub of cold water from the well, in a short time were swimming about quite lively. Mr. B. M. Douglass, of East Springfield, Conn., says he has caught perch, pickerel, trout, and carp, in winter, allowed them to freeze, carried them for miles, and when thawed out in well water, not one in six but would come to life. He adds, they can be carried to any distance if kept frozen, but if not frozen quickly after being caught "they will not come too," this he has always noticed. By this, it appears, that if a considerable time elapses between the period when the fish is taken out of the river and thawed they cannot be resuscitated. Ransom Cook, of Saratoga, N. Y., a very observing man, adds a new fact to this store of information on the subject. He says, that all fish which have been frozen and resuscitated, have their sense of sight destroyed—they all become blind.

To Make Mice Decamp.

A correspondent informs us that if the places infested by mice, their holes, &c., be treated to a plentiful supply of Scotch snuff, they will make tracks for other regions. We have never tried the experiment ourselves, but it can be easily and cheaply tried. Those who are troubled with mice should make the experiment. We have a few running about our office, they are handsome, sleek little things, and do no harm as they are well provided for. We hate rats, but mice are beautiful little animals. The tree mouse and the shrew are among the prettiest specimens of animated nature.

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NEW INVENTIONS.

Improvements in Mill Stones.

Mr. Charles F. Campbell, of Phelps, Ontario Co., N. Y., has invented a useful improvement on Mill Stones, for which he has taken measures to secure a patent. He makes an additional set of furrows around and very near the eye of the stone. These furrows are cut in and across the ridges, near the eye of the stone, and form the main furrows. One edge of each of the ridges bounding the grooves, is curved, the groove or channel being enlarged at the eye of the stone, and it gradually lessens in width as it approaches the grooves of one set of the cross furrows near the periphery of the stone. The object effected by the employment of the additional set of grinding edges formed by the grooves being made, and the making one edge of each of the ridges curved, is, that the ridges serve as distinct crackers to break the grain more rapidly than by the old plan of dressing stones, and this affords a constant supply of cracked grain to the main and cross grinding ridges.

Improvement in Securing Lamps in Lanterns.

Mr. P. J. Clark, of West Meriden, New Haven, Conn., has invented and taken measures to secure a patent for an improved mode of securing lamps in lanterns.

The nature of the invention consists in securing lamps in lanterns by means of a circular spring which encompasses a projection on the base of the lamp. Around this projection is a recess in which the circular spring fits; the bottom of the lantern has also a recess round its inner surface near the bottom, and by pressing the lantern downward till the recess in the lower portion comes opposite the circular spring, the said spring will expand and partially occupy the recess in the lower portion of the lantern. When it is required to detach the lamp from the lantern, the circular spring is compressed within the recess around the projection, and being thus freed from the recess in the lower portion of the lantern, the lamp can easily be withdrawn. The improvement is a very good one, and as lanterns are very extensively used and are very useful instruments, those who know how bothersome it is to fix lamps quickly in some of the lanterns now used, would be glad to see this invention applied to every new lantern made hereafter.

Improvement in Power Looms.

Mr. James Greenhalgh, of Waterford, Worcester, Mass., has invented some very useful improvements on power looms, for which he has taken measures to secure a patent. The improvements relate to harness looms, and consist in the mode of hanging the treadles or jacks, whereby they are made to balance the harness, and raise and lower it with with equal facility. The jacks are long double treadles, which are hung to effect the object stated.

The Counting House Perpetual Calender and Bill Register.

Mr. J. N. Ayres, of Stamford, Fairfield County, Conn., has taken measures to secure a patent for an improvement in these articles, the nature of which is set forth in the above caption, the improvement being to show, at a glance, to those persons in a counting house, or other place of business, whose duty or wish is to know, what bills are becoming payable or receivable every month, along with their precise dates and amounts.

Improvement for Increasing the Draught of Furnace Flues.

Messrs. Francis Harris, Senr., and Francis Harris, Jr., of Elizabethtown, New Jersey, and Chauncey Barnes, of Brooklyn, N. Y., have invented and taken measures to secure a patent for an improvement in the flues of furnaces; the nature of which consists in placing a horizontal fan in the upper part of the smoke pipe, said fan having oblique fans, by the revolution of which, a vacuum is produced in the pipe, and the draught of the flues increased.

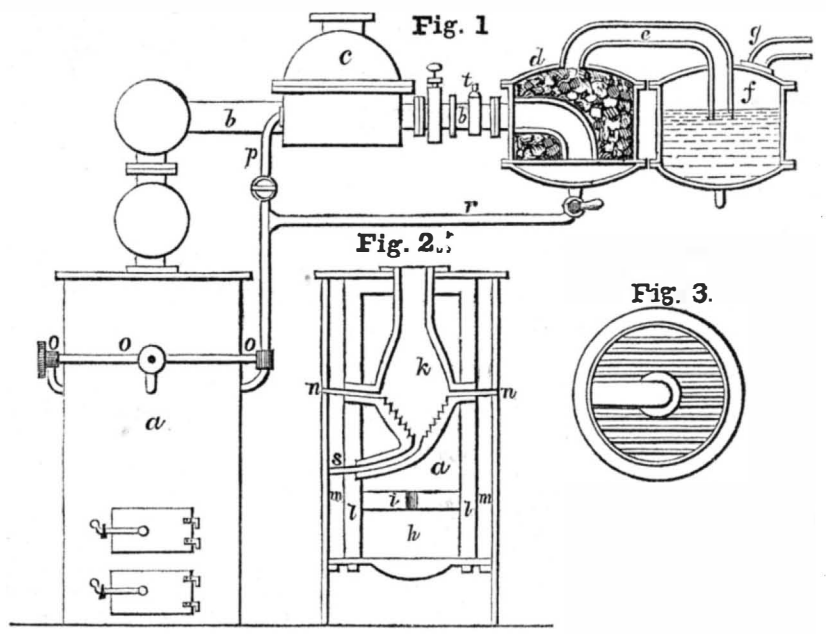
Sharp's Breech-Loading Rifle..

"We understand that the Sharpe Rifle Company have purchased the large Butler lot on the north side of Pleasant street, east of the lower part of Village street. They will erect a large factory upon it, capable of accommodating from three to five hundred men; also a large foundry and machine shop. This will give new and vigorous life to all that part of the town. The demand for the Sharpe Rifle will be very great, for it is by far the most efficient and meritorious breech-loading gun ever invented. So rapidly can it be fired, that two balls may be kept flying in the air at the same time, from one of them; and this is done when the person who fires continues to load his gun at every shot."—[Hartford (Conn.) Times.

[For an engraving of this rifle see page 196, Vol. 6, Scientific American. It is, we believe, the most simple breech-loading rifle in the world.

Jackson (the American Deer) has been beaten in a great foot race in England, for the championship. He never found his match here. The winner was a fellow named Frost. We hope Uncle John will give up the brutalizing ideas of prize-fighting and devote more attention to the harmless efforts of foot racing.

IMPROVEMENTS IN THE MANUFACTURE OF GAS.



These improvements are the invention of Mr. George Robbins Booth, of London, and were recently patented by him in England, an account of which was first published in the London Patent Journal. The improvements are worthy of the attention of factories and all places where a great supply of gas is not required. They refer to the manufacture of gas from oil, tar, or other resinous or fatty matters, and is specially applicable to places where coal gas cannot well be introduced or made, or where any fatty matters are cheap.

Fig. 1 represents this apparatus in side elevation, complete; *a* is the stove or furnace, in which the retort is placed; *b* is the pipe leading from the retort, by which the gas is carried off; *c* is the oil cistern, by which the supply of oil is maintained for the retort; *d* is a vessel containing pumice-stone or other analogous substance, through which the gas permeates, passing thence, by the pipe, *e*, to a vessel, *f*, containing water, into which the pipe, *e*, dips. From the upper part of the vessel, the pipe, *g*, conducts the gas to a gas-holder, for consumption. Fig. 2 represents the furnace and retort in section; *h* is the fire-place; *i* is a covering of fire-brick material, having an aperture in the centre, through which the heat passes to the retort, *h*, which is suspended from the top by the neck. The space containing the retort is lined with fire-brick, *l*, and again surrounded with pounded coke or charcoal at *m*, and the whole encased within a metal casing. Passages, *n n*, are formed on either side of the retort, with which pipes, *o o o*, are in connection; these branch off from a main pipe, *p*, leading to the oil cistern, *c*, by which the supply is maintained to the retort. Index taps are provided at each orifice, by which the supply is regulated to the condition of the retort. The fire having brought the retort to a cherry-red, the oil taps may be turned on, by which the oil will be distributed on the serrated sides and bottom of the retort, by contact with which it is generated into gas. Should the oil at all abate the heat of the retort, the supply must be reduced so as to maintain that temperature. The gas thus generated, passes over, as before described, through the pipe, *b b*, to the coke or pumice-stone vessel, where any oil carried over is deposited in the bottom of that vessel. The pumice-stone is supported on a grating, shown in the plan, fig. 3, through which the gas has free passage, and ascending up through the pumice-stone, passes over to the vessel, *f*. as before mentioned. The vessel, *c*, should contain about 4½ gallons, and at each time of filling that cistern, the residual oil in the bottom of the vessel, *d*, is to be drawn off in the following manner, before turning on the fresh supply of oil:—The tap from the oil cistern is turned off, and the tap at the bottom of the vessel, *d*, turned on, when the oil contained in that vessel passes, by the pipe, *r*, into the retort by the regular emission apertures, where it is converted into gas. A residium will now be formed in the retort, which must be removed before further operation. For this purpose, an opening is provided at the bottom of the retort, at *s*; this is usually stopped by a plug. Another opening also exists at *t*, or some other convenient part of the pipe, *b*. This opening has a long tube affixed to it, to act as a chimney. By opening both these passages, air will be allowed to enter the bottom of the retort, which, being at a red heat will induce combustion of the carbon deposited in the retort, which will pass off in a gaseous form through the vent chimney, *t*. This will also burn out the soot in the pipe, *b*, and globes therein, rendering the whole free and clean, and adapted for further operations. The chimney for the passage of the products of the combustion is not shown in the engraving, but it will be readily understood as a necessary adjunct to the furnace.

Riddle's Fair in New York.

We see that the Tribune calls this contemplated small second-hand Fair, "The World's Fair." This requires a great amount of telescopic examination. It is not an "American Fair," for there are no national rewards offered, nor have any national feelings been consulted about it. It is a speculation, and will be a failure (there can be no doubt about that) to the projectors of it. It will turn out like Mr. Barnum's "Fire Annihilator's." The offcast things are to be sent here to gull the Yankees, and a Yankee projector is to draw the wool over the eyes of his countrymen. It may, pleasingly to some, break down the American Institute—which may commence to groan now, as its days are numbered by Riddle & Co. These men think to make great fortunes out of it, but they will be disappointed, unless they can change it into a travelling caravan; for our American folks don't want such a thing to last over three months; they can all see, and all learn what they want out of it, in that time. It is to be erected so far out of New York City, too, and among so much mud and dirt, that but few will go to see it except when the sun shines, after a long spell of dry weather. If it was to be a decent affair, one to confer honor on our country, we could speak well of it. We are sorry we cannot, for we believe it will be a disgrace to us.

Modest Mr. Adams.

Voluntarily, we never criticise a cotemporary, for that would be ungentlemanly; we never thrust our advice upon a brother editor, for that would be pedantic. At two separate times we have been the special object of Mr. Julius W. Adams' attention: first, in a small, a very small, critique, and advice; secondly, in what he terms a correction, and a very flippant one it is. It happened on this wise: a short time ago a correspondent sent us a table of the melting heat of various substances, (it was not ours), and asked for information respecting Fahrenheit's thermometric scale. We gave him the precise and exact information he wanted, by quoting a short extract from Prof. Brande's Dictionary; Mr. Adams blames us for not giving due credit for the same. We had reasons for not doing so. We know that many men arrogate to themselves wonderful airs for compiling books, much matter of which they derived from periodicals like the Scientific American, without giving any credit for the same; Mr. Adams has done this. A short time ago D. Appleton & Co., of this city, published a Dictionary of Mechanics and Engine Work; the ostensible editor was Oliver Byrne, but Mr. Adams claims to have edited the work from letter F. There is a question of veracity (one, happily, with which our name never was associated) between Mr. Byrne and the semi-editor; therefore we shall not now speak of the main part of this work; the Appendix, however, is Mr. Adams' compilation; and on pages 945–6, there are three engravings and a full description of Wilson's Sewing Machine, taken, word for word, from page 369, Vol. 5, of the Scientific American, without any credit. There is another paper, with two figures, in the said Appendix, the author of which was the Editor of the Scientific American; and there is another paper in the same Appendix, with five figures; which was prepared in our office,—no credit is given; we asked none, and we have never spoken of this before. Perhaps Mr. Adams claims the authorship of these papers because he had the honor of handing them to the printer. We have never been indebted to him for an extract or a single idea, and in all likelihood never will be. He presumes to correct us for conduct such as he has been guilty of towards us, but which we never have manifested towards him. 'Tis him who needs reproof, not us. As for his advice, we know our own duties better than he does. We have flourished under the jealous attacks of much abler tilters with the pen; and when he becomes tolerably initiated into the profession of journalism, he may, if he puts eyes on the back part of his head, learn what to say, to whom, and when.

Gwynne's Centrifugal Pump.

The London Mining Journal publishes engravings of Gwynne's Centrifugal Pump. One of them is now being used in the city of Glasgow, Scotland, for pumping the water out of coffer-dams, where a new bridge is erecting over the river Clyde.

It is said to work well and is highly praised, but there is not the remotest idea among the people there, that it is anything more than a good rotary pump. None but the most stupid of men would ever attempt to prove that it delivered more water, by weight, than the power applied could raise to the same height; yet this is what the centrifugal numskulls contend for here.

California and Australian Gold.

The gold of Australia is said to be still abundant, and the public mind of that country in a state of ferment about it.

The number of emigrants to California is greater at the present moment than at any other period since the gold discoveries. The streets of New York are swarming with men bound to the golden land. The State of Maine is sending out a prodigious number of hardy gold seekers. There is a company now ready to sail from London, called the Anglo-Californian Gold Company. What the result of these things will be it is difficult to tell.

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Scientific American

NEW-YORK, FEBRUARY 14, 1852.

The Croton Water---Its Action on Lead, &c.

The President of the Croton Water Aqueduct Department (Mr. Dean), has presented his yearly Report, and a very interesting one it is. It states that a small jet of a fountain, discharging only half a pint in every ten seconds, wastes as much water as will supply a family of twenty persons, with twenty-seven gallons of water each, daily. It has been shown that there is an annual waste of one hundred millions of gallons by private fountains alone. Millions of gallons are wasted in flooding our streets and washing our pavements, instead of merely sprinkling them; this is particularly the fault among our most wealthy classes, who water their pavements when they should merely sprinkle and sweep them —they really show a want of good judgment, quite inexcusable for educated people. A synopsis of Prof. Silliman's Report on various waters, is presented, and the salubrity of the Croton water, in New York, clearly demonstrated. Prof. Silliman instituted his examinations on the action of the Croton water on lead, as follows:—he took a pint bottle and placed in it a slip of lead half an inch wide and ten inches long, clean and bright, which had passed through the rolling mill but a short time before; its weight was carefully noted before the experiment, and the bottle was then filled and tightly corked, so as to try the effects of the water upon the lead, under the same conditions as upon lead water-pipes.

The only condition of lead in water-pipes, running full bore, which was not met in this arrangement, was in the fact, that as leaden pipes are soldered together, and to the pumps, or brass cocks, and as the solder and brass fixtures are more highly electro-negative than lead, chemical action is more likely to take place on it than if not thus situated. It would, therefore, have been well had there been an independent series of comparative experiments instituted to determine this point, (by imitating the exact condition of the lead), but the time allowed to the research was too limited to allow of a repetition for this purpose.

A bottle of pure distilled water was, at the same time, placed aside with lead, under the same conditions, for the sake of comparison. After five weeks the bottle was opened and examined, when the lead was found as bright and fresh as on the day it was put in, and the water was quite clear. The weight of the lead was precisely the same as when put in, thus showing that no chemical action had taken place.

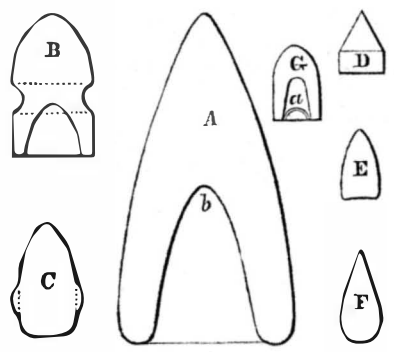
During the past summer the Department had occasion to take up from the street a lead service pipe, which had been in use 8 years; it was sawed in pieces, very carefully examined (without chemical tests), and no change by oxidation or other action could be detected.

In respect to the cautionary measures to be observed by people having lead pipes in their dwellings, the Report says:—

"The Department is aware of but a single case in which any precautions can be necessary in the use of Croton water for drinking, and these only at elevations, where the supply is not constant. In the upper stories of buildings, where the pipes are alternately wet and dry, caused by the daily variations of head in the Distributing Reservoir, it is possible that the interior of the pipes, by the united action of air and water, may be so oxidized, as that particles of the carbonate of lead might be carried off, held in suspension by the water, and received in the stomach by drinking it; it would be imprudent, therefore, habitually to drink water from taps so circumstanced."

The information presented respecting the action of the Croton water upon lead, is to allay any anxiety respecting the employment of lead pipes. Dr. Chilton's opinion, we believe, differs from that of Prof. Silliman, and even in the analysis of Prof. Silliman it was found that the Croton water contained far more carbonic acid gas than the Philadelphia or Boston waters, and Dr. Thompson considers the carbonate of lead to be the only compound of lead which has poisonous properties. Neither Christison nor Taylor, however, agree with him. We should like to have more extended experiments on the subject, for it has been found, by the two chemists last referred to, that if water does not contain the requisite amount of sulphates and muriates, it is not considered safe to use, if allowed to come in constant contact with lead. The Croton water, we believe, is safe, good for domestic use, and not liable to corrode lead. We have used it for a great number of years, and never have, to our knowledge, suffered a pain by it, nor have we known any other person who was ever injured by its use.

Rifle Shooting, Bullets, &c.



A Mr. C. A. Holdstock, in a letter to the London Mechanic's Magazine, describes various kinds of rifle bullets and advocates making them with a hollow chamber at their butt end. A letter recently published by an officer in the English army, describes the terrific fire of the French rifle. We propose to present all that has lately been brought forward as now on the subject of the bullet, but first of all let us give a few extracts from the letter referred to on French rifle shooting.

"I find that Mr. Delvigne, the inventor of the now celebrated rifle of the Tirailleurs de Vincennes, had to contend against the ignorance and prejudices of all the civil and military authorities of France from 1836 to 1837, although he pointed out how the best troops of France, under the most experienced officers, had been beaten by the rifle of the peasantry of the Tyrol. The loss, however, of officers and men in Algeria was so great that in 1838 the Duke of Orleans, before going to Africa, organized a battalion of Tirailleurs de Vincennes (then called Chasseurs d'Afrique) to take with him. As an instance of the perfection of this weapon, even in 1838, it may be mentioned that the Duke, while reconnoitring, was annoyed at the pranks played by an Arab Sheik at a distance of about 650 yards. He offered five francs to any soldier who would knock the Arab down. A soldier (M. P.) stepped out of the ranks of the Chasseurs d'Afrique and instantly shot this Arab chief through the heart.

There are now in the French army a force of 14,000 men armed with this "1846 model rifle"—this unerring and murderous weapon, with its cylindro-conique hollow ball.

Capt. Minie, the inventor of the hollow conical bullet, will undertake to hit a man three times out of five at 1,400 yards distance. The French recruits, beginning at 200 yards from the target, and increasing by one hundred yards finish at 1,150 yards. It is found by calculation that at 328 yards a man has the appearance of one-third his height, at 437 yards one-fourth, at 546 one-fifth. By a very simple instrument of the size of a penknife, called a stadia, distances can be measured accurately to 500 yards, and the sights of the rifle can be adjusted to the space indicated by the stadia. I have tried this stadia and measured the distances indicated, and pacing the ground found it correct.

The barrel of the rifle is about 2 feet 10 inches long. The breech is smooth with a small piece of steel of cylindrical form screwed into its centre, and on the proper adjustment of this piece of steel (tige) depends the precision of the firing. When the bayonet is fixed the length is about 6 feet, and its weight about 10 lbs. This sabre bayonet is admirably adapted for attack and defence, and can also be used as a bill hook. The interior of the barrel has four spiral grooves, deeper at the breech than at the mouth. The old French ball weighs 26 grammes, this ball 47½ grammes, (a gramme is 15.43 grains). The ball is of lead, of cylindro-conique shape, but hollow towards the thicker end, into which hollow is put a piece of iron (culot) slightly fixed in the ball, and resting on the powder. When fired this piece of circular iron (culot) is forced into the interior of the leaden ball, and consequently presses its parts outwards against the sides of the barrel, and produces a more certain aim than if the ball had been forced down with a heavy ramrod and mallet. This rifle can be loaded with the same quickness as the common musket."

This writer praises the French riflemen beyond measure, and says the British are very far behind them. He recommends that the troops sent to fight the Caffers be armed with them. Since his letter was published, we see that the British Twelfth Lancers are to be armed with doubled-barrelled rifles, and that a number of officers and privates have been practising with the new arms, and are to proceed to the Cape of Good Hope to teach the regiment there the use of the same.

The balls used in the doubled-barrelled rifle carbines are of the conical description found so effectual at long ranges, doing great execution at 600 or 800, and in many instances at 1,000 yards' range.

Mr. Holdstock, spoken of, in 1843, after a train of experiments extending through the ten preceding years, says:—"I suggested that the rear of a projectile should contain a parabolic chamber, because all rays parallel to a parabola, after impinging on the curve are discharged into the focus. This principle is applied to the patent chamber in guns, and shortly after the publication of the paper, the French adopted the suggestions in it, and added a little fancy of their own in an iron capsule to expand the lead." This is mentioned in the extract we presented above. In the annexed figure, A is a conical bullet with a butt chamber, *b*, and is proposed by Mr. Holdstock for cannon shot. It is expected that great changes are about to take place in the British army in respect to artillery and small fire arms.

It is contemplated to have rifled cannon made ready for experiments during the present year, some beautiful self-acting machinery having been invented for grooving the cannon in the most perfect manner. It is expected that with rifled cannon and conical-shaped shot, the field artillery will attain a great range.

The breeches of cannons for this shot must be made stronger than the common kind, but it will require a long train of experiments before artillery can approach to a practical solution of the precise form, to a certainty, of a projectile. It is time, however, that our army was up and doing on this question. The figure B is the heavy Prussian rifle bullet used in the late Holstein war. The deep circular groove of dotted lines was packed with an oiled stuffing to fit the rifle like the piston of a steam cylinder. The centre of gravity is in front of the parabolic chamber in this bullet, which is a self-evident bad arrangement, but which could not be made better on account of the packed groove. The figure C is also a Prussian bullet, with outside packing. The figure D is a cylinder bullet surmounted by a cone, which, although it would fly very true, has a resisting angle to the passage of a bullet through the air, and to be of a proper form it must have a *curvature continua*—like a ship's lines. The figure G is the French bullet spoken of in the extracts quoted. *a* is the iron capsule in the chamber. It is fired from a four-grooved rifle. The capsule, *a*, is driven down the chamber of the bullet by the explosion, which thus expands the bullet and makes it fit the barrel perfectly tight. This iron capsule, however, sometimes passes through the bullet, which makes it go wide of the mark, therefore it is not worthy of the praises it has received in the letter quoted. Mr. Holdstock proposes to fill the chamber with gun cotton, and cover it with thin paper, or to fill it with rocket mixture. The Prussians set up their targets at 800 yards; the English rifle is good at 1,200 yards. The question of the best curve for the bullet is one of importance, and about which there are different opinions. It appears to us that a bullet made on the principle of Schiele's anti-friction curve, (see pages 289, 292 Vol. 5, Sci. Am.,) would be the best, as every part of it is tangential to the circle of the barrel.

Europeans are not acquainted with what has been done in America—the greatest country for rifle shooting in the world. The best work on the subject is that of "the American Rifle," by our friend Mr. John R. Chapman, of Oneida Lake, N. Y. The figure E is the conical bullet of a beautiful curve described by him, and F is the old American picket bullet. It is our opinion that the bullet, E, is the best, and if it had a very small parabolic chamber at the butt, and this left empty, covered with a thin patch, a decided improvement would be the result. The small chamber would leave room for a greater expansive powder effect upon the bullet in the barrel. In Mr. Chapman's work, there are samples of American target shooting at 220 yards, the target being 20 inches diameter. In one sample, 10 shots can be covered with a man's hat around the bull's eye. Our crack rifle shooters employ telescopes on their rifles. Edwin Wesson, who is now moulderingin the dust, used to make fine rifles. We understand that since his death, the factory at Hartford, Conn., has broken down. Mr. James, of Utica, N. Y., makes splendid rifles, and there are a number of excellent rifle makers among us. We would call attention to Mr. Chapman's work. He says that a first rate American rifle, with a telescope, will, in still time, throw all its shots, at 220 yards distance, into a circle of 1½ inches diameter, and at 440 yards into a circle of 8 inches diameter. No European shooting, we believe, can compare with this. He advises the arming of select riflemen with telescopic rifles; a thousand of them would destroy an invading army of 30,000 men armed with muskets before they could advance very far into the interior.

Reward for Inventions.

Letters are pouring in upon us from all directions, since the appearance of F. M. Ray's Card in No. 19, submitting sketches and asking our advice as to whether such and such plans are useful, or likely to receive the reward. Now, notwithstanding our willingness to afford advice to our correspondents upon matters relating to invention, we are compelled, respectfully, to decline attending to any communications upon this subject. We would gladly do so could we afford the time, but our legitimate duties are urgently demanding our attention, hence the reasonableness of our refusal.

The Pennsylvania Railroad.

The Managers, Directors, &c., of this railroad are in a sad state of ill feeling towards one another. We regret to see it, there must be something wrong. We hope the whole truth of double-dealing will be dug out, and those who deserve the blame be held up to public rebuke.

On Tuesday last week there was an election for officers, and no less than 52,000 shares were voted upon. There was a tremendous excitement in Philadelphia. J. E. Thomson, the well known Civil Engineer, was elected President. He has succeeded Col. Patterson. The Superintendent, Mr. Haupt, has been at loggerheads with the late President, and Mr. S. V. Merrick. The stockholders, it seems, have sustained Mr. Haupt. We hope the road will now go on and prosper.

Skins of Raisins.

We see it stated in some papers, that Dr Devees, of Boston, has said that raisin skins are indigestible, and that nothing but the stomach of an ostrich can master them. He mentions the deaths of three children, caused by skins of raisins not digesting in their stomachs. Well, Dr. Devees, what about their digestibility when cooked? Raisins are fruit, which from time immemorial, have been used as a nourishing and healthy food by all Orientals.

Our Steamships.

It is believed that the petition of E. K. Collins, for a further increase of government support to his splendid line of steamships, will meet with a most favorable consideration in Congress, and that the whole amount of relief requested will be granted.

That veteran clergyman, Rev. Dr. Nott, saw his 98th birth-day on the 23rd ult.

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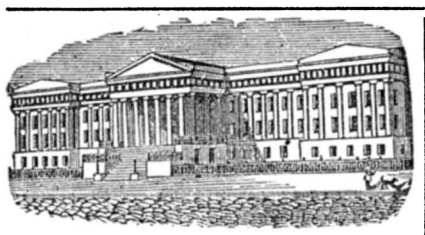

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING FEBRUARY, 3rd, 1852

HEMP BRAKES—By L, S. Chichester, of Williamsburgh, N. Y.: I claim making two or more breaking and cleaning cylinders, with fixed rods at or near their peripheries, and radial plates, made to slide radially, (or some of them fixed), operated substantially as described, in the spaces between the rods, substantially as described, the two or more cylinders being geared together, so as to turn with equal velocities, and so placed, that in their rotation the rods and plates of one cylinder shall come opposite to those of the other cylinder, for the purpose and in the manner substantially as set forth.

And I also claim the combination of springs, substantially as described, with the sliding plates of the cylinder or cylinders, operated substantially as described, for the purpose of rendering the plates self-adapting to the material introduced, and insure its being properly griped, and held so as to admit of slipping without undue strain on the fibres, as described.

GRASS BURNERS—By Jno. A. Craig, of Columbia, Ark.: I claim the application to the surface of the ground, flame, for agricultural purposes, using, for that purpose the described machine, or any other substantially the same, which will, by heat, produce the intended effect.

FEEDERS FOR PLANING MACHINES—By Jno. Cumberland, of Mobile, Ala.: I claim the described combination of a bed-piece with the spring lever, connecting rod, arm, tumbler, and clicks, and its grooves, guides, and rack, with a movable platform, with the adjusting levers and ratchets, for the production of a lateral traverse and lost motion, with its adjustable table, adjusted by springs, weights, screws, or other known means, with its hand-wheels, rollers, vertical ratchets, and balance clicks, and of a frame with its pulley and half wheel, for the purpose of delivering or receiving material thereon, the whole being constructed, combined, and operating as set forth.

STREET SEWERS—By Willard Day, of Brooklyn, N. Y.: I claim the combination of the basin placed at the bottom of the inclined drain and at the side of the sewer, with a single man-hole, so placed as to give access to the basin and sewer.

DOOR SPRING—By Henry Hochstrasser & Abrm. Masson, of Philadelphia Pa.: We do not claim the straight piece of steel for a spring, as new; neither do we claim having the spring act most powerful when the door is closed. But we claim the application and mechanical arrangement of a curve in connection and combination with a spring and rollers, for the purpose of a door spring, whose power will be exerted more strongly when the door is closed, or about closed, than when open entirely, or partially, as described.

GAS PURIFYING APPARATUS—By Abram Longbottom, of New York City: I claim purifying the gas by passing it through a mixture of equal measures of quick-lime and of animal charcoal, in the same retort in which the gas is generated, but at a temperature so regulated that at the lowest point, or where the gas enters the composition, the mass is at a lowered heat, and at the top, or where it leaves the composition, the heat is below redness, substantially as set forth.

METHOD OF KEEPING THE VALVES OF OSCILLATING ENGINES UPON THEIR SEATS—By Ephraim Morris, of New York City: I claim the pressure of plugs, or their equivalents, acting against the caps or their equivalents, in combination with the steam chest, valve, and valve seat, vibrating with the steam cylinder: said plugs operating to keep the valve or valves on to the seat or seats of the same, as described.

AXLE-TREE ARMS—David Philips, of Sharon, Pa.: I claim contructing metallic arms for axle-trees, with sockets and ribs, as set forth, so that the arm can be attached to the wooden stock or body of the axle-tree, without the employment of the hoops, clips, and screw bolts heretofore employed, even when the stock is as small or of less diameter than the arm.

CONCENTRATED BEER MATERIAL—By Franz G. Rietsch, of Rudoletz, Austria: I claim the new and useful preparation of matter described, termed Zeilthoid.

SHIPS' BLOCKS—By Wm. & S G. Coleman, of Providence, R. I.: We claim the method of making ship's blocks, by placing the metal straps edgewise; that is, with its greatest breadth in the direction of the plane of the axis of the sheaves, and extending from the sides of the sheave to the outside of the cheeks, substantially as specified, when this is combined with the attachment of the cheeks, in segments, to the wide faces of the straps, substantially as specified.

And we also claim making the cheeks of ships' blocks, in segments of a ring, substantially as specified, whereby the elongated form is obtained, by simply turning in a common lathe, whilst apertures are left each side of the straps, to give admission for cleaning and oiling, and for checking or stopping the sheave, as set forth.

RUNNING GEAR OF RAILROAD CARS—By Henry Davis Taylor, of Newark, N. J.: I do not claim the grooved inclined wheels fitting to the rails; but I claim the lower truck or frame supported upon the rails, and prevented from rising by grooved inclined wheels fitting to the edge of the rails, and connected to the trucks and body of the car, by series of links and rods, substantially as described, and operating for the purpose set forth.

And I also claim the forked guards, provided with elastic bands, and attached to the lower truck, so as to move up and down freely, but formed so as to take a firm bearing, or rest, on the front axle, or any stationary part of the front truck, when brought into contact with any obstruction, substantially as set forth.

RUNNING GEAR OF CARRIAGES—By Chas. F. Verleger, of Baltimore, Md.: I claim the combination of the segment plate and the perch sliding thereon, and connected with the axles, as described, with the segment plate, forming a part of the perch, and the plate attached to the perch block of the body, and sliding on the plate, in connection with the rods, by which the other parts are regulated and governed in their action, constituting an arrangement of running gear, constructed substantially in the manner set forth.

STEERING APPARATUS—By N. W. Wheeler, of Buffalo, N. Y.: I claim the combination of fast and moving circular racks of different diameter, with corresponding planet wheels or pinions, connected together and actuated by the hand wheel, as set forth.

BRIDGES—By Ammi White, of Boston, Mass.: I do not claim, separately, as new, the mode of constructing the stringers, by splicing and securing planks, in the manner set forth; nor yet do I claim, separately, the use of diagonal planking, crossed in layers, as described; nor yet again do I claim, by itself, increasing the width of the roadway and other parts of the bridge at the ends: neither the mere employment of side guards or braces—as all these, or similar devices, or applications belong to common carpentry, or ordinary bridge building—they, however, are necessary details, or certain principles, essential to the construction of my bridge, involving a combination having the effects and advantages specified. But I claim, first, the combination of parts, constructed and arranged as described, in formation of a wooden tubular suspension bridge—that is, the several suspension stringers, D D, of catenary form, and constructed and united in pieces, as explained (the outer ends of the extreme stringers being locked as in the back stays) the stringers, H H and I, for construction thereto, or thereon, of the inclined roof, made of diagonal planking; the roadway stringers, connected by suspension rods to D D and H H, the direct arch united by suspension rods and further direct arch, N, bearing under the upper stringers, together with the transverse floor timbers and roadway; the bridge thus constituted, being formed—that is, its stringers, arches and coverings, of short pieces of wood united, and having their fibres running in appropriate directions, as shown, and the bridge being, in form, wider at its extremities, gradually narrowing towards the centres by which combination and arrangement of parts the tensile strength of the wood, in the suspenion stringers, is fully employed, vertical, and lateral vibration are reduced, the roof more than assists towards the support of its own weight, and the bridge may be extended over a considerable space.

Second, by the continuous angular side guards, formed by fender raves, inclined rafters diagonal plank covering, and extensions of the transverse roadway timbers, the said side guards projecting most and being of greatest extent at the extremities of the bridge, gradually diminishing towards the centre, and the specified side guards, serving not only as braces to reduce the lateral motion, but as a covered roadway, and to break the effect of wind upon the structure.

[See engraving of this Bridge in No. 3, present Vol. Sci. Am.]

DESIGNS.

MANTLE, GRATE-FRAME AND SUMMER-PIECE—By J. L. Jackson of New York City.

GRATE-FRAME AND SUMMER-PIECE—By James L. Jackson, of New York City.

GRATE-FRAMES—By James L. Jackson, of New York City: two designs.

HAIR COMBS—By James Shields, of Fishkill, N. Y.

[For the Scientific American.]

Houses in Towns.

I cannot look around me, in any town through which I may happen to pass, without being struck with the heterogenous masses of brick and wood which disgrace its appearance,—here is a brick house struggling into respectability of exterior; there a row of marble fronts, giving the splendor of a palace to a few square yards of front walls, while the rear ones are rough, ragged, and tottering. In another part are to be seen wooden tenements of respectable appearance, but ready to be ignited by every wandering spark, and among all these, like rooks among doves, are to be seen hovels, occupied by those whose means are limited, and by their dwellings afford evidence of poverty and suffering. I think we can do better than this; can every man have a house of his own? Yes, say both the philosopher and the selfish man, though facts and common sense are against them. Can every man build a suitable, healthy, and well ventilated tenement, fit for the moral and intellectual man to live in? Yes, say all, in the teeth of the absurdity. Practical life disproves both of these expectations, yet the world hopes to accomplish what I may call a natural impossibility. It has always struck me, that, as we want two things—solidity and beauty—solidity for its manifold advantages of warmth in winter and coolness of summer; and beauty as a moral principle for elevating the mind—the residences of many should be constructed in a different manner and on different principles. Looking at some of the miserable cages in which I see vast numbers huddled together, one cannot but be humiliated at the idea of their near approach to the condition of the mere animal. In some places in Europe there is a nearer approach to the proper system, though it is not carried out as it ought to be: a large "Hotel,"—a palace in appearance and extent, will contain apartments for twenty, thirty, or a hundred families, and these of all classes. The poorest person who enters its magnificent portal, may find that he resides in a palace, although his room or rooms may occupy but a very small portion of it. I see no reason for not improving on this system.

Yesterday, as I surveyed our noble Patent Office, I fancied I saw in its mode of construction and form, something that might be followed out in the construction of edifices for the dwellings of all classes. The system appears to me to be more republican, and would be more commodious to both rich and poor than the general system of isolated houses. Such a building might be fire-proof,—heated on a general scale in winter, well ventilated, and have a magnificent entrance, like that of the Patent Office; or a central hall, as in some square buildings, and which should be a public one for meetings, soirees, &c. This public hall might be splendidly decorated, fitted with galleries, and the floor inlaid with wood of various colors. As a specimen, I would mention that of the Reform Club, in London. The intelligent architects of this country, employed by associations for building edifices worthy of the people, would soon devise a thousand beautiful and different plans. I merely throw out the suggestion, because buildings, elegant in form and architecture, solid in construction, commodious and well ventilated, would not only be an ornament to our cities, but a blessing to the people. Associations could get them up economically, taking all things into consideration. The money now spent in constructing a hundred houses of every size, inconvenience, and ugliness, might rear a gorgeous pile—a pleasure to those within and a picture to those without. To those of limited means, a comfortable residence at a cheap rate, in an apartment warmed in winter, at a charge borne by the general rent, would be inestimable. How many gentle people, born and bred amid luxuries, and unable, by the greatest energy, to turn the tide of fortune, are driven to perish in the vilest haunts, paying dearly even there for a lodging. There are philosophical as well as economical considerations in the suggestions which I have thrown out. Our present system of building houses, in general, is a selfish error, and costs us dear in purse, health, and morals. I do not suggest that all the world should be forced to live together in edifices of a uniform character. I propose profitable, convenient, sociable, and picturesque styles of residence for rich and poor—one worthy of imitation in the Model Republic, and conducive to public health, wealth, and morals. C. L. A.

Washington, D. C.

Anchor Ice.

MESSRS. EDITORS—Your correspondent's remarks about anchor ice being found only in swift shallow places of water, is clearly a mistake, as I should be able to show him if he were at this place; it is quite common, in drawing my fish in the morning, after their being sunk in twenty feet water, and that too where it does not move at the rate of half a mile an hour, to find them almost a solid mass of anchor or bed ice, and sometimes other fish are found encrusted and fastened in the mass, which leads me to the conclusion that it forms in almost any depth of water and at a very rapid rate, the cause of which, to my mind, has never been satisfactorily explained. The rising or rather the letting go of the bottom, is equally rapid; I have known it to be a foot thick all over the bed of the river, or as far as we could ascertain, and from some cause yet unknown, would entirely disappear in less than an hour. B. M. DOUGLASS.

East Springfield, Conn.

Selling a Patent that is no Patent.

I deem it my duty to inform you how the Patent Laws are disregarded. I made a machine for loading logs on a wagon, by placing timbers lengthwise of the wagon and the bolsters, and to be even with the top of the wheels. I placed a windlass on the side by a slide meshing through the side timbers. A rope passed around the barrel of the windlass, over the log and back to the wagon. Azra Lyman came to me and got an assignment to try and obtain a patent. He made the application and failed. He then went to Indiana and sold rights. The first I knew about it, was the reception of a letter sent to me by a man in Indiana. He stated he had bought a right, and I obtained the certificate he received from Ezra. It is stated in it, that I obtained a patent in September 1849, which is unfounded. The machine is the best I have seen for the purpose, but people should be prevented from imposing on the public.

PHILANDER GILBERT.

Alexandria, Licking Co., O., Jan., 1852.

Scientific Memoranda.

"POCKET STOVES.—The Milwaukee Advertiser says that a gentleman of that city has invented a spirit stove which, while only a foot square, will warm any ordinary sized room. It weighs less than ten pounds, is convenient for carriages, cars, and even small ones may be carried in one's pocket of a cold day, and producing neither soot, smoke, nor ashes, might be made as ornamental a piece for personal wear as a watch or breast pin."

[We know such portable stoves were employed twenty years ago, and were used by hunters for cooking when in the wilds, chasing the wild deer and driving the roe.

BURSTING OF A STOVE BOILER.—The New Orleans Delta gives an account of a young Irish girl, named Nolan, who was employed at the house of Mr. Charles Bridge, at the corner of Prytania and Third streets, Lafayette, and was killed by the accidental explosion of a stove boiler. The boiler was in a kitchen range, under which the girl had made a fire a short time previous to the accident, and either in consequence of too short a supply of water, or improper confinement of the steam which was generated, the explosion took place. A fragment of the broken stove cut off all the front part of the poor girl's head, and death was, of course, the almost immediate result.

THE QUADRANT SUPERSEDED.—The San Francisco Pacific states that the Rev. Tyler Thatcher has discovered a new and superior method of determining the latitude and longitude.

"His method of determining the latitude, by a single observation of any heavenly body, seen by night or by day, either on the meridian, or at any angle with the meridian, is perfectly geometrical, and as obvious and certain in its results as any case whatever in spherical trigonometry. He employs the same observations also to fix the longitude. The method by which this is done is partly geometrical and partly arithmetical, but as plain and certain as any demonstration in Euclid's Elements, or any sum in the Rule of Three."

We hope this will prove all that is claimed for it; but we are tardy to believe in such things, for we know that a great many discoveries have been brought forward, claiming the very same things.

COMPREHENSIVE MINDS.—The Rev. Henry Ward Beecher recently delivered a lecture in the Tabernacle, this city, on the "Law of Precedents." In respect to mental qualities of races, he adduced the following:—

"In a recent report of English education, it is proved that one nationality is distinguished from another, in the sphere of mind. Men of all nations have been tested. French, Italians, Germans, English, Scotch, and Irish. In each nation men are to be found of equal capacity to do a thing, to execute a plan which they see before them. But no nation can plan like that of the Scotch. They have, above all others, the faculty of comprehension."

WINE—The Western Horticular Review contains a letter to the Wine-Growers' Association, by N. Longworth. He says there are three kinds of wine, in Ohio, that are extensively made for sale. One is the pure juice of the dry Catawba, fully fermented; another is made from the Isabella grape, to which is added 1½ lbs. of loaf sugar to the gallon, then it undergoes fermentation, and keeps sweet for a number of years. The third is the sparkling Catawba (champaigne) made from the grape of that name, after it has undergone full fermentation, and has a certain quantity of rock candy added to give it sweetness and effervescence. In Madeira, a sweet wine is made by adding one-third of brandy to two-thirds of grape juices, as it comes from the press; it is a pleasant wine, but is not healthy on account of not being fermented. Mr. Longworth says, "we intend, in a few years, to render portions of the Ohio River as celebrated for its wines as the Rhine." After all, it seems that sugar is to the wine-growers what putty is to the glaziers, and those who talk about the pure juice of the grape, and unfermented wines, are very ignorant of the subject.

Louis Napoleon has ordered five-franc pieces to be struck off with his likeness; "Louis Napoleon Bonaparte" are the words which encircle his moustached profile.

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TO CORRESPONDENTS.

A. J. G., of N. Y.—You say you have had several papers sent you, advocating sundry lottery schemes, and wish to know if any of them can be relied on, and if intelligent men patronize them, and if you would be likely to receive fair play. Our advice to you is, to keep your premium money, and consider all such schemes as humbugs, and if any more papers come addressed to you from such sources, refuse to take them from the Post-office. We know of no intelligent men who patronize such institutions, or honest men engaged in such traffic, in this city or elsewhere.

D. T., of ———.—You want a circular saw of small diameter—no more than 10 inch. It should have a high velocity, be thick of plate, be fine in the teeth and set but very little from the ripping line.

J. D., of N. Y. City.—We never become pecuniarily interested in new inventions or patents, and could not be induced to under any circumstances.

G. & Co., Paris.—We wrote you per last steamer in reference to the Spanish patent.

G. H. W., of N. Y.—We have no correct proof that the polarity of the earth was ever changed. If the Bible is your authority that there were two races of antedeluvians on the earth, it should also be authority for the manner in which the flood was brought about.

B. F. B., of N. C.—A brake formed by having a friction strap round the shaft and a lever attached to it with a weight thereon, should modify the speed of the overshot wheel, by moving the weight backwards and forwards. We have never seen a brake used for this purpose; we can only give our theoretical views. If it will not answer, you will have to get up an extra shaft and get the changeable speeds by gearing.

W. L. W. of Tenn.—You perceive that Mr. Gilbert is out, in this number, against Lyman. In the matter of the machines you refer to, we can only refer to the back volumes of the Sci. Am. You had better have the assignment recorded.

C. F., of N. Y.—You may not be aware that it is common to use a reach, which admits of the extending the length of the truck. They are common for lumbering carriages here and elsewhere. We do not see any patentable arrangement in your plan.

J. H. B., of Mass.—India rubber has been used for stopples, but not as combined on your plan.

S. G. N., of N. H.—The method of gearing you submit is well known and could not be patented in any particular application. Numerous references could be given.

R. M. W., of Va.—The plan you describe for making oil faucets is neither new nor patentable.

W. R. K., of Miss.—It would cost about $700 to get a patent for you in England.

I. D. of Ohio—Your advertisement will cost 75 cents each insertion. Please remit and indicate how many times you wish it to appear.

J. C. U., of Ind.—We know of no better material to use, in packing eggs to preserve them, than slacked lime.

D. H. P., of Mass.—We have never heard of your celebrated aurist (Dr. B.), but don't believe any one ever yet rendered the hearing organ perfect of one born deaf.

J. S. D., of N. Y.—The best work on the subject—Technology of the World—is the Encyclopedia Metropolitana. It is not exactly the work you want, but it is the best there is.

G. B., of Pa.—Battin's Coal Breaker has been decided to be different from the fluted rollers, as the objects accomplished are different.

M. R. L., of Ohio—We have never seen the same plan as yours for preventing cylinder heads being blown out; we believe it to be patentable.

C. B. H., of N. Y.—We know of no substance that will soften oil paintings without spoiling them; but the oil can be softened by turpentine.

J, B. W., of N. C.—The alkali water could not be patented as applicable to extinguish fires, as its qualities for that purpose are well known to chemists. Alum is much better than potash.

S. W. N., of Mass.—You will not gain any power by the length of a crank nor the air box, but by them you could equalize the action of the power, that is all; a like plan was presented in Vol. 3 Sci. Am.

A. C., of Ct.—You know that lead boilers have oftentimes been used. If you take a small glass tube and fill it partially with a colored fluid, and then apply a candle to the top, the fluid will rise.

H. A. J., of N. Y.—We will attend to getting up the table, &c., respecting the arches.

E. N., of N. H.—The whole expense to you would be about $50; we cannot tell how it would pay you; this depends greatly on the way of managing a patent; a model is the first thing required in the application for a patent.

E. W., of Cincinnati—We do not know the machine noticed in your paragraph.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Feb. 7 :—

H. L. H., of Vt; P. J. C., of Ct.; N. W., of Mass.; C. F. C., of N. Y.: J. G., of Mass.; H. & D., of N. J. (2); A. Van N., of N. Y.; A. B. W., of Ct.

Money received on account of Patent Office business for the week ending February 7.

W. C. Van H., of N. Y.. $20; C. R., of N. J., $20; J. M., of Ct., $50; J. L. H., of N. Y., $40: N. W., of Mass., $20; P. J. C., of Ct., $20; J. H., of N. Y., $30; C. F. C., of N. Y., $20; J. B., of N. Y., $30; H. & D., of N. J., $67; E. P. G., of N. Y., $42; A. Van N., of N. Y., $28; W. W. & Co., of Ct., $32.

ADVERTISEMENTS.

Terms of Advertising.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them at any price.

American and Foreign Patent Agency

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

MORTISING MACHINE.—Dear Sirs: I received the Portable Mortising Machine about 3 weeks ago; I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.

Nashville, Tenn., 1851.

This machine is simple, durable, and effective, and is boxed and shipped for the low sum of $20.

MUNN & CO.

DESIRABLE PROPERTY FOR SALE—The Dekalb Manufacturing Co. will offer for sale their Cotton Factory, Corn Mill, and Tannery, near Camden, S. C. The situation is pleasant and healthy, offering a veay desirable investment for capitalists; the water-power is amply sufficient for all purposes; within one mile of the terminus of the Camden and South Carolina R. R., affording daily opportunity for the shipment of goods. The Cotton Factory is now in operation, making Osnaburgs and Yarns, and contains 1680 spindles, 20 30-inch cards, and 40 looms, in good condition, with machine shop attached, with lathes, cutting engines, etc. The Corn Mill received last year, as toll, 1400 bush. of corn: the Tannery has 36 vats, and bark mill. Will be sold on a credit of 1, 2, and 3 years, at public sale, 1st March; open for private sale until then Apply to THOS. LANG or WM. ANDERSON, Camden, S. C. 22 3

TO STAIR BUILDERS—The "UNIVERSAL STAIR BUILDER," just published by R. A. Cupper, Architect, New York, is a new treatise on the construction of Stair Cases and Hand-Rails, showing plans of the various forms of Stairs, with a new method of sawing the twist part of any hand-rail and joints square from the face of the plank, and to a parallel width, the same as for any horizontal work—which can be done at the saw-mill for one-sixth of what it cost by hand; the saving of material and labor is from 50 to 100 per cent. This system is now adopted in New York, Philadelphia, and Boston. It is pronounced by the most scientific Stair Builders to be the greatest discovery ever made. Price $6. For sale by Wm. Gowans, 178 Fulton st., N. Y.; Benj. Greene, 124 Washington st., Boston, and 240 West 26th st., N. Y. Books forwarded to any part of the United States an receipt of the money. 22 3*

TO FELLOE AND SNATH MAKERS—The undersigned having purchased the entire right of A. W. Johnson, for his machine for bending carriage felloes, &c., are now prepared to sell State or county rights for said machine; having used said machine for several years, we know it to be a saving in timber of 30 per cent, and more expeditious. Persons can see one of the machines at work at the manufactory of W. S. Johnson & Co., St. George's, Del.; also felloes of all kinds. Shafts and carriage stuff always on hand, and at prices to suit dealers in the above. WM. G. JOHNSTON & Co.,
22 10* St. George's, Del.

METALLIC LETTERS AND FIGURES FOR PATTERNS.—

Price	3cts.	3cts.	3cts.	3cts.	4cts.	4cts.	4cts.
Size,	5-16	3-8	7-16	1-2	9-16	5-8	3-4

6cts., 1 in.; 7cts., 1 1-4 in.; 8cts., 1 1-2 in.; 10cts., 2 in. Also Gothic Style: 3cts, 1-4 in.; 4cts., 1-2 inch. Manufactured by COWING & CO., Seneca Falls, N. Y. Orders solicited. They can be sent to any part of the Union, either by Mail or Express, as all packages are weighed and sent the cheapest way. 22 4*

LATHE WANTED.—Wanted a new or good second-hand Engine Lathe, about 12 to 18 feet long, and that will swing 30 to 50 inches. Address, postpaid, box 187, Harrisburg, Pa. 21 2*

TO ARCHITECTS, SCULPTORS, &c.—The Commissioners of the Greene and Pulaski Monument Lottery Fund, offer Three Hundred Dollars for an approved design for a Monument, to be erected to the memory of Count Pulaski, in Chippewa Square, Savannah. Architects, Sculptors, Designers, &c., are invited to offer plans and specifications for selectmen, and to evince their own taste and judgment as to design, with no other limit than the cost, which must not exceed $17,000. Designs will be received until the 1st day of April, 1852, by the subscriber, from whom any further information may be had.

WM. P. BOWEN, Secretary.
Savannah, Geo., Jan. 13, 1852. 21 6*

TO INVENTORS.—I beg respectively to suggest that the establishment of a National Inventor's Institute, with regularly organized branches, would be the best means to assist your efforts to superintend your interests, and protect your patent rights. JAMES NIXON, Potosi, Wisconsin. 21 5*

STEAM BOILER, of 2 1-2 horse power, (Bently's Patent) with pipes and fiixtures in complete order. Price, $125. Enquire 78 Suffolk st, of I. L. & D. I. RIKER. 21 2*

ONE DOUBLE ENGINE of six-horse power, second-hand, used about one year; the size of cylinders, 4 inch bore and 12 inch stroke, and furnished with pump, regulator, and all attachments; the boiler is horizontal tubular, 7 feet long, 3 1-2 inches in diameter, and requires no brick to set it, the fire being made inside the boiler. The above engine will be sold for $400 cash, delivered in New York.

MUNN & CO.

MACHINIST'S TOOLS.—Marshall, Bement & Colby, (successors to E. D. Marshall & Co.) Callowhill street, west of Schuylkill Third, Philadelphia, Pa., are prepared to make to order, and keep on hand Machinist's Tools, such as Planing and Compound Planing Machines, on a new and improved plan, Slide and Hand Lathes, Upright and Horizontal Drills, Upright Boring Machines, Improved Screw and Bolt Cutting Machines, with P. W. Gates' Patent Dies and Taps, or with the common Dies, Gear Cutting Engines, Slotting and Paring Machines. Also keep on hand Washburn & Whiton's Patent Scroll Chucks, of all sizes. All orders by letter or otherwise will receive their prompt attention. E. D. MARSHALL, WM. B. BEMENT, G. A. COLBY. 21 10 *

CHAS. W. COPELAND, Consulting and Mechanical Engineer, Surveyor of Steam Machinery, &c., No. 68 Broadway, N. Y., superintends the construction of steam vessels and steam engines, and machinery of every description; specifications and contracts prepared; also general plans and drawings in detail furnished. Steam engines surveyed and valued, and condition reported. Mr. C. also acts as agent for the purchase and sale of steam vessels, steam engines, boilers, &c. 21 10*

MALLEABLE IRON FOUNDRY, EASTON, Mass.—The subscriber continues to manufacture castings of every variety, for machinery and other purposes, of the best quality, at the above establishment. We have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Eastern Express, Boston, Mass. All letters will be promptly attended to.

21 10* DANIEL BELCHER.

A STEAM ENGINE of 30 horse-power, for sale, with two boilers, furnace front, grate bars, copper pipe, heater, double-acting pump for cold and hot water; also Judson's patent Governor Valve. and Noyes & Allan's Metallic Packing—all complete and ready to be put in operation immediately. For particulars address HENRY BACMEISTER, Steam Engine Builder, Schenectady, N. Y. 19 4*

CLOCKS FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c., and REGULATORS FOR JEWELLERS.—The undersigned having succeeded in counteracting effectually the influence of the changes of the temperature upon the pendulum, and introduced other important improvements in the construction of clocks, are prepared to furnish an article, superior in every respect (the highest grade warranted to vary less than two minutes in a year) to any made in the United States. Ample opportunity will be afforded to test their qualities. Glass (illuminated) dials of the most beautiful description furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."—[Scientific American.

"Mr. Byram is a rare mechanical genius."—[Jour. of Commerce. 19tf.

EUREKA! NEW YORK AHEAD OF the World!—Patent Premium (Silver Medal, 1851, Amer. Insti.) Corn and Cane Stalk, Hay, and Straw Cutter. Bertholf's machine is warranted, after a test of 3 years, to surpass any machine of the kind ever offered in the United States,—strong words, but "FACTS are not assertions." It will cut, and leave in better condition, corn or cane stalks (almost any machine will cut hay or straw) and save 40 per cent. of material. It being impossible for the inventor to visit the different sections of the United States, he has concluded to offer State or County Rights to manufacture and sell his patent machines: a profit of 33 per cent. can be readily realized by manufacturing. Sales are unlimited. For information in regard to State or County rights Address (post-paid) ENGELBRECHT & HOOVER, Attorneys and Agents for the Patentee, 257 Broadway, New York. 19 4*

A. B. WILSON'S SEWING MACHINE, justly allowed to be the cheapest and best now in use, patented November 12, 1850; can be seen on exhibition at 195 and 197 Broadway (formerly the Franklin House, room 23, third floor), New York. Rights for territory or machines can be had by applying to

19 4* WM. S. LOVELL, Agent.

THE EXCELSIOR Sand and Emery Papers. are offered as new and superior articles, being manufactured by an improved process; the paper is made from the best Manilla hemp, and consequently is very strong and lasting; the grit is of the sharpest and most enduring kind, and is firmly attached to the paper with a remarkable evenness of surface; their freeness from ridges, stripes, and other imperfections, recommend them to the notice of consumers. These papers have been used by many of our first mechanics, and are pronounced superior to all others. Every sheet is stamped WM. B. PARSONS, and warranted. Samples furnished at the office, No. 187 Water street, New York. WM. B. PARSONS,

14 6m* Sole Proprietor.

P. W. GATES'S PATENT DIES FOR CUTTING SCREWS—Patented May 8th, 1847.—This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m*

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post.paid) MUNN & CO.

At this Office.

TO MACHINISTS.—William B. Parsons, Manufacturer of the "Excelsior" Sand and Emery Paper, has on hand a very superior article of Corundum, suitable for emery purposes. This has been thoroughly tested at the Nashua Lock Works, Nashua, New Hampshire, and proved to be second only to emery, and perfectly free from dust and extra grains of grit. For sale in any quantity, and all numbers, at 187 Water st, N. Y. WILLIAM B. PARSONS.

20 4*

VENTILATION.—Mr. Ruttan, of Coburg, Canada, is desirous of an opportunity to direct the erection (for ventilation) of a good dwelling or school house in the city of New York. For particulars inquire at the Scientific American Office. 15 10*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 9tf

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 5tf

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions. Orders respectfully solicited and punctually attended to. Washington Factory, Newark, N. J. 7 20*

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.

QUARTERMAN & SON, 114 John st.,
9tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 13 tf

WOODWORTH'S PLANING MACHINE—For sale, the right to use this justly celebrated labor-saving machine in the following States, viz., Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama, and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 208 Broadway. 17 12*

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, New Haven, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; slide rests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 10tf

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be surpassed. JOHN R. TRACY,

14tf. THOMAS J. FALES.

McCORMICK'S PATENT REAPERS AND MOWERS.—1700 of these machines, for which the great Medal of the World's Fair was awarded, are being manufactured at Chicago, Ill, with the intention of supplying the South-eastern States for the next harvest The gold medal of the Chicago Institute was recently awarded for this Reaper and Mower, tested against two other mowers, in cutting prairie grass; and the first premium of the State Agricultural Societies of Wisconsin, Michigan and Pennsylvania, were also awarded at their late Fairs. Price $120 at Chicago, and $122 delivered at Philadelphia; terms otherwise accommodating. 9tf

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m*

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11tf

HAWKIN'S Stave Dressing Machine—Is now in operation in the city of Milwaukie, Wis., and will dress from 6 to 8000 staves per day, ready for the truss hoops, and at one operation. Rights for States and Counties, and also machines, for sale, apply to WM. HAWKINS, Patentee, Milwaukie, Wis. 15 20*

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

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SCIENTIFIC MUSEUM.

For the Scientific American.

On the Forces.

In the Scientific American, No 13 and 14, there is a communication over the signature of H. R. Schetterly, which I think deserves some notice. The writer, inadvertently no doubt, has fallen into some errors of terms, if not of ideas. He remarks that "forces are either impulsive or constant, or both combined. An impulsive force puts a body in motion, and then lets it move by its own inertia." "A constant force continues to act upon the moving body after it has put it in motion, causing it to move faster and faster every moment; and this is called accelerated motion." Is not an impulsive force a constant force, causing accelerated motion, whilst it is acting? How long must a force act to be a constant force? And how short a time to constitute it an impulsive force? Is not a constant force an impulsive force acting a longer time? I can conceive of no difference in forces, only so far as one acts with a greater less intensity, or a longer or shorter time than another. Multiply the time of action, by its intensity, into the mass acted on, and the velocity will result in all cases. There can be no motive force without time—it must have time to act; and although the length of time of its action be ever so short, yet it will be an accelerating force while in action; it will, during that time, move the body on which it acts with accelerated motion, from a state of rest, up to the velocity communicated. It is impossible to conceive of a force acting without time. If it acts during no time, it is no force.

I will pass by the inconsistency of calling the action of wind and water constant forces, instead of a succession of forces, and the statement that "when an impulsive and a constant force act on a body, conjointly and simultaneously, they produce curvilinear motion around the centre of the constant force," and leave the writer to start a vessel to sail around the wind, whilst I pass on to the errors which I at first took up my pen to correct.

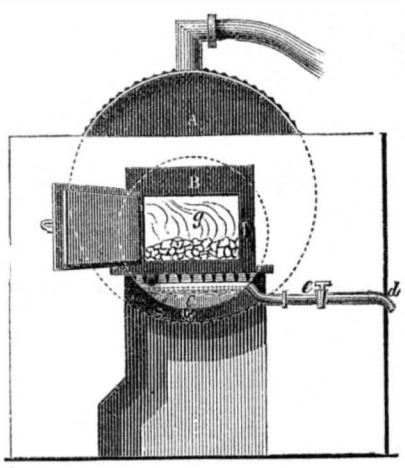
After illustrating the central forces, by whirling a weight tied to one end of a string, while the other is held in the hand, around one's head, he remarks—"now, in the case of the string and weight, the impulse is communicated to the weight by the hand, and the momentum generated by this impulse is manifestly decomposed into the centrifugal force of the weight, and the force with which the weight would strike an obstacle in its orbit, and each of these two forces must therefore be less than the force which first moved the weight, because the sum of the two former is only equal to the latter." So Esq. Andrew's machine is no humbug after all! Mr. Schetterly has given him all he wants—a force equal to that with which a body in circular motion strikes. For I understand him to suppose that the centrifugal and striking forces are equal; and, as the striking force will always equal the impulsive force, whatever the amount of the centrifugal force is, must be a clear gain—which we hand over to esquire Andrews.

If the string should break whilst the weight was being whirled around the head, it would fly off from its orbit in a tangent, with a velocity equal to that with which it moved in its orbit, plus the centrifugal force. Will Mr. Schetterly estimate the plus, and pass it over to esquire Andrews? If the sun should lose its attractive force, and the earth fly from its orbit with a velocity increased by the centrifugal force; how much faster would it move than it now moves in its orbit? Not any; for there is no such force as centrifugal,—you can make nothing of it; for, if a body that is moving in a circle be let to fly off in a tangent, its velocity will be no greater, and it will strike with no greater force against a fixed obstacle, than when it was moving in a circle. What is termed centrifugal force is nothing more than the inertia of the moving mass; its resistance to having its course changed from a right line to a curve, by a centripetal force; and so long as the centripetal force acts laterally to its motion, or radial to the curve of its direction, it can neither retard nor accelerate it. It is somewhat strange that men, otherwise intelligent, should hold these notions;—that men who are able to instruct persons in the natural sciences, should, in some important things, err, and thus lead their followers astray, is unfortunate. J. B. Conger.

Jackson, Tenn., Jan., 1852.

On Boilers.---No. 12.

Fig. 21.



Steam and Fuel.—The accompanying fig. 21, represents the mode of obviating dense smoke, and for using steam as a heat generator. It was invented by Mr. R. Evans, of London, in 1824. A is an end view of the boiler; B is the internal fire-place contained in a large tube denoted by the dotted circle lines; C is the ash-pit; *d* is a branch from the exhaust pipe of the steam engine; *f* is the feeding tube, pierced with numerous small holes through which the steam escapes in little jets, diffusing itself over the surface of the under part of the fire, and in passing through the fuel is decomposed. The fuel employed was coke, which gave off no flame except when the cock, *e*, was open and the steam used, when it gave off a flame as represented by *g*. This apparatus was successfully used for at least five years in London, and upon a trial made by Mr. Evans, he found that it reduced the expense to about one-half that which he incurred when using coal. Until he applied the exhaust steam he had to relinquish the use of coke, which of itself as a fuel, was not able to raise enough of steam. After he applied the steam, he had no trouble in raising a plentiful supply of steam, without an extra expense of fuel. A considerable quantity of water was formed after passing to the chimney, by condensation, and this required a cistern at the bottom of the chimney to collect it. It was also observed that the grate bars were soon destroyed by oxidization. We regret to state that for want of a general knowledge of this invention, the same thing has been re-invented a number of times, not long since, in our country.

Furnace for Anthracite Coal.—When this kind of fuel was but little known, and as little estimated, Mr. B. Howel, of Philadelphia, took out a patent in 1828 for boilers, the principle of which was to generate steam, and use the anthracite without bringing it in contact with the boiler. He also claimed the application of the artificial blast, upon the anthracite, "to increase the intensity of the heat, and giving it the necessary direction through the communicating flues of the furnace." The idea embraced in the invention, was to generate steam, the boiler being out of contact with the fire. He also claimed the plan for heating kilns for making pottery and earthenware; also for burning brick. A description of it will be found in the Franklin Journal of 1828.

A great number of patents have been taken out for furnaces, and the application of the heated products to useful purposes. It is but a short time since a case was tried in the U. S. Circuit Court, Philadelphia, the parties being Detmold versus Reeves, for the infringement of a patent of a foreign invention, namely, the application of the heated products of smelting furnaces. A patent was secured by that veteran inventor Dr. E. Nott, many years ago for a like invention.

Smoke cannot be said to be a nuisance in this part of the world, for very little bituminous coal is used here; but there are other places in our country where the smoke consuming furnaces we have described and illustrated may be of great benefit. A great number of patent furnaces are described in "Galloway and Hebert's History and Progress of the Steam Engine," Ure's Dictionary, and especially in the work of William West, chemist, of Leeds, Eng.

(For the Scientific American.)

Galvanic Plating with Metals.

As your paper is the medium through which the public receive knowledge of nearly all the improvements in the arts and sciences at the present day, I have taken the liberty to make known a new and, said to be, valuable discovery in chemistry, for gold and silver plating, by one R. J. Huygens, a practical chemist.

Gold—For gold take 1½ pints rain water, dissolve one ounce of cyanide of potassium; when this is all dissolved, add 60 grains, or four bottles of chloride of gold and sodium,—mix the compound well, and add 8 or 10 grains of carbonate of potash, and after it has settled it is ready for use. To use this it will be necessary to have a strip of zinc about 1-8th of an inch wide, and longer or shorter, according to the size of the article to be plated, and laid in the liquid so as to connect with the article: too much will blacken it.

Silver—Dissolve a twenty-five cent piece in an ounce of nitric acid by a gentle heat; add a quart of rain water, and throw in a large spoonful of salt; the silver will settle to the bottom. Carefully pour off the water and fill the vessel as before, again pour off; continue this until you cannot taste salt or acid, and add an ounce of cyanide of potassium, and it is fit for use.

To Prepare German Silver for Plating.—Dissolve a five-cent piece in one-quarter of an ounce of nitric acid, and add three-quarters of an ounce of water; add as much cream of tartar and alum (equal parts) as the water will dissolve; rub the article with this and dissolve at once. L. A. Dunham.

[Many of the readers of our present volume—our new subscribers—may not be acquainted with the electrotype; or, like Mr. Dunham, may have heard of some such a person as Mr. Huygens having made the discovery. To those who are not acquainted with the electrotype, the above receipts may be new, but all who desire to become acquainted with the best account of the art, should read Vol. 6, Scientific American—the articles by George Mathiot, the best Electrotypist in our country.—Ed.

Old Time Winters.

The river Tiber used to be frozen over in the days of old.

In 1664 the cold was so intense, that the Thames was covered with ice sixty-one inches thick. Almost all the birds perished.

In 1695 the cold was so excessive, that the famishing wolves entered Vienna and attacked beasts and even men. Many people in Germany were frozen to death in 1695, and 1696 was nearly as bad.

In 1709 occurred the famous winter called by distinction the "Cold Winter." All the lakes were frozen, and even the sea for several miles from the shore, The ground was frozen nine feet deep. Birds and beasts were struck dead in the fields, and men perished in their houses. In the south of France, the wine plantations were almost destroyed, nor have they yet recovered the fatal disaster. The Adriatic sea was frozen, and even the Mediterranean, about Genoa; and the citron and orange groves suffered extremely in the finest parts of Italy.

In 1716 the winter was so intense that people travelled across the Straits from Copenhagen to the province of Sema, Sweden.

In 1726, in Scotland, multitudes of cattle and sheep were buried in the snow.

In 1740 the winter was scarcely inferior to that of 1709. The snow lay ten feet deep in Spain and Portugal. The Zuyder Zee was frozen over, and thousands of people went over it. All the lakes in England froze.

In 1744 the winter was very cold. Snow fell in Portugal to the depth of twenty-three feet on a level.

In 1754 and 1755 the winters were very severe and cold. In England the strongest ale, exposed to the air in a glass, was covered with ice one-eighth of an inch thick.

In 1771 the Elbe was frozen to the bottom.

In 1776 the Danube bore ice five feet deep below Vienna. Vast numbers of the feathered and finny tribe perished.

The winters of 1774 and 1775 were uncommonly severe, and during the Revolution cannons were drawn on the ice from this city to Jersey City.

From 1800 to 1812 also, the winters were remarkably cold, particularly the latter, in Russia, which proved so disastrous to the French army.

In the winter of 1819, heavy loaded teams used to cross between New York and Jersey City

Cost of Luxuries.

The aggregate value of wines imported into the United States, annually, is $2,000,000 brandy, $3,000,000; beer, $1,750,000; snuff and segars, $1,750,000; tea, $5,000,000; coffee, $12,000,000; figs, almonds, raisins, &c., $1,000,000—total, $35,500,000. What do those nations take in return, from whom we import these articles? This is an important question.

Tunnel in the Hoosic Mountain.

The rock through which the tunnel is being cut through the Hoosic Mountain, Vermont, is a soft mica slate and can easily be cut with a knife.

LITERARY NOTICES.

Perkins' Plane Trigonometry, with Tables of Logarithms—This is a new work by George R. Perkins, A. M., Principal of the State Normal School at Albany, and, as might be expected from his abilities and high character, it is a most excellent and able one. It treats of the application of Plane Trigonometry to Mensuration and Land Surveying; it contains full Logarithmic Trigonometric tables; and one thing we like about it is, that all the figures in the tables are in the old-fashioned type which adorns our old friend Hutton; this type is not so fatiguing to the eye. We have had many inquiries about a good work on Trigonometry, this one we can heartily recommend. It is published in excellent style by those great publishers, D. Appleton & Co., New York City.

Littell's Living Age—No. 404 of this work is a capital number: "Mount Blanc," "Leaves from the Note Book of a Naturalist," and a number of other most excellent papers, are embraced within its interesting leaves.

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